

Soil Survey of Edgecombe County, North Carolina

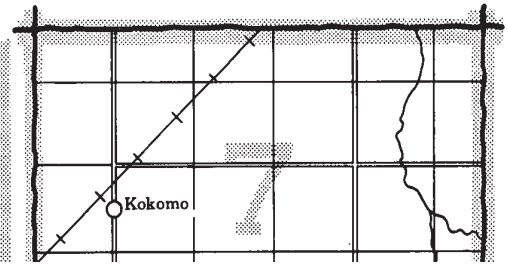


United States Department of Agriculture, Soil Conservation Service
in cooperation with the North Carolina Agricultural Experiment Station and the
Edgecombe County Board of Commissioners

HOW TO USE

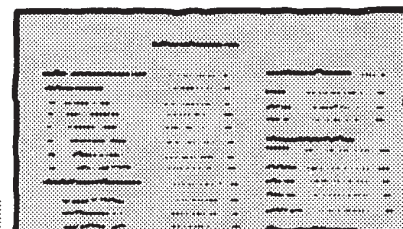
1.

Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).



THIS SOIL SURVEY

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A thumbnail image of a table titled "Index to Soil Map Units". The table has three columns: "Map Unit", "Page", and "Description". It lists various soil map units and their corresponding page numbers and descriptions.

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This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was done in the period 1968-76. Soil names and descriptions were approved in 1976. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1976. This survey was made cooperatively by the Soil Conservation Service, the North Carolina Agricultural Experiment Station, and the Edgecombe County Board of Commissioners. It is part of the technical assistance furnished to the Edgecombe County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps could cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: Peanut crop in an area of Norfolk loamy sand, 0 to 2 percent slopes.

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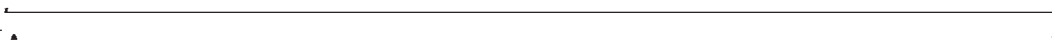
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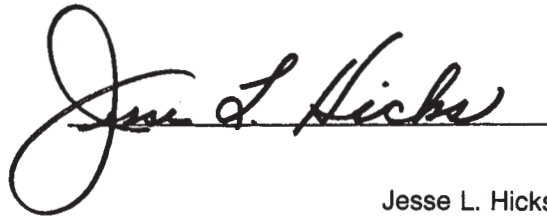
Foreword

This soil survey contains much information useful in land-planning programs in Edgecombe County, North Carolina. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

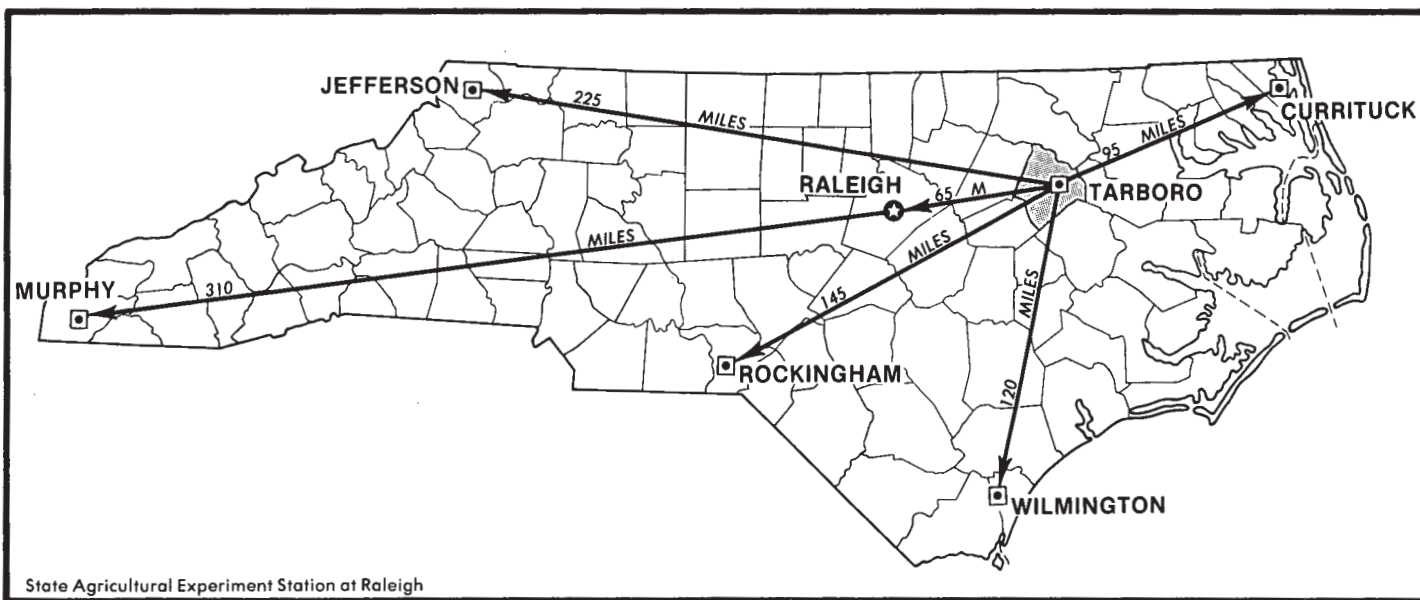
This soil survey has been prepared for many different users. Farmers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

A handwritten signature in black ink, reading "Jesse L. Hicks", written over a horizontal line.

Jesse L. Hicks
State Conservationist
Soil Conservation Service



Location of Edgecombe County in North Carolina.

Soil Survey of Edgecombe County, North Carolina

By Roy A. Goodwin, Jr.

Soils Surveyed by Roy A. Goodwin, Jr., Henry S. Hunt, III, James Dunn, Glenwood A. Fields, and
Everette Lynn, Soil Conservation Service, and David Rossiter, North Carolina State University

United States Department of Agriculture, Soil Conservation Service, in cooperation with the North Carolina
Agricultural Experiment Station and the Edgecombe County Board of Commissioners

EDGECOMBE COUNTY is in the eastern part of North Carolina. In 1970, according to the North Carolina Population Census, Edgecombe County had a population of 52,341, and Tarboro, the county seat, had a population of 13,609.

This county is in the Coastal Plain physiographic province. It has a land area of 327,040 acres, or 511 square miles. It is bounded on the north by Halifax County, on the west by Nash County, on the south by Wilson and Pitt Counties, and on the east by Martin County.

General nature of the county

In the paragraphs that follow, the history; physiography, relief, and drainage; water supply; climate; and transportation and industry of Edgecombe County are described.

hood. Such crops as corn, peas, wheat, oats, rye, sweet potatoes, cotton, and flax were grown. Many of the farms in Edgecombe County became known throughout the South for their high yields.

Following the Civil War and Reconstruction, attention was again focused on agricultural development. By 1874, tobacco had become the most profitable crop. The favorable climate and the abundance of good land encouraged the tradition of agricultural diversification. With the development of good farm-to-market roads, Edgecombe County became an outstanding agricultural area. Tobacco, peanuts, cotton, soybeans, corn, and small grains are important crops. In recent years there has been a trend toward more livestock production.

The need for industrial development was also recognized during Reconstruction. In 1881, a cotton mill was established in Tarboro. By 1891 the county had four railways and three steamship lines. These transportation

sloping to strongly sloping side slopes adjacent to the drainageways.

The county slopes very gently eastward and south-eastward. According to U.S. Geologic Survey quadrangle sheets, the highest elevation is about 140 feet, along the western boundary between Nash and Edgecombe Counties, and the lowest is about 10 feet, on the southeastern boundary where the Tar River leaves the county.

The Tar River drains the county. Movement of surface water is slow on the broad, nearly level divides and on the heavily vegetated, nearly level flood plains. Runoff is medium in the gently sloping areas near the drainageways and rapid on the sloping to strongly sloping side slopes adjacent to the drainageways. A few interstream areas such as Gatlin Woods are wide and have large areas of wet soils.

Water supply

Ground water, plentiful throughout the county, is near the surface in most places. It is easily tapped for municipal, household, and farm uses. Many farms have small excavated ponds less than 15 feet deep. A number of

Of the total annual precipitation, 27 inches, or 56 percent, usually falls during the period April through September, which includes the growing season for most crops. Two years in 10, the April-September rainfall is less than 23 inches. The heaviest 1-day rainfall during the period of record was 5.09 inches at Tarboro on October 1, 1971. There are about 46 thunderstorms each year, and about 26 of these occur in summer.

Average seasonal snowfall is 6 inches. The greatest snow depth at any one time during the period of record was 13 inches. On the average, 2 days have at least 1 inch of snow on the ground, but the number of days varies greatly from year to year.

The average relative humidity in midafternoon in spring is less than 50 percent; during the rest of the year it is about 55 percent. Humidity is higher at night in all seasons, and the average at dawn is about 84 percent. The percentage of possible sunshine is 60 percent in summer and 55 percent in winter. Prevailing winds are southwesterly. Average windspeed is highest, 10 per miles per hour, in March.

In winter every few years, heavy snow covers the ground for a few days to a week. Every few years in late

tant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After classifying and naming the soils, the soil scientists drew the boundaries of the soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the section "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows the soil associations in the survey area. Each association is a unique natural landscape—a distinct pat-

having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one association differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The relative terms assigned to soil potential classes are defined in the section "Soil maps for detailed planning."

Soil associations

1. Norfolk-Aycock-Wagram association

Nearly level to strongly sloping, well drained soils that have a loamy subsoil; on uplands

The soils in this association are in broad, slightly convex areas that are rounded along the drainageways. They are dissected by many drainageways that have short side slopes and narrow to wide flood plains.

This association makes up 44 percent of the county. It is about 30 percent Norfolk soils, 10 percent Aycock soils, 10 percent Wagram soils, and 50 percent soils of minor extent. These minor soils are in the Autryville, Bibb, Duplin, Exum, Goldsboro, Grantham, Johnston, Marlboro, and Rains series. The Bibb and Johnston soils are in the drainageways that dissect the association.

The nearly level to sloping Norfolk soils are well drained. The surface layer is brown loamy sand. The subsurface layer is light yellowish brown loamy sand. The subsoil is yellowish brown sandy clay loam in the upper part and brownish yellow sandy clay loam in the lower part.

The nearly level and gently sloping Aycock soils are well drained. The surface layer is grayish brown very fine sandy loam. The subsurface layer is light yellowish brown very fine sandy loam. The subsoil is brownish yellow loam in the upper part, yellowish brown and brownish yellow clay loam in the middle part, and reddish yellow loam in the lower part.

The nearly level to strongly sloping Wagram soils are well drained. The surface layer is dark grayish brown

Most of the major soils in this association have high to medium potential for cultivated crops, urban uses, and woodland.

2. Goldsboro-Rains association

Nearly level, moderately well drained and poorly drained soils that have a loamy subsoil: on uplands

The nearly level and gently sloping Altavista soils are moderately well drained. The surface layer is brown fine sandy loam. The subsoil is brownish yellow sandy clay loam in the upper part and mottled light gray, strong brown, very pale brown, and yellowish red sandy loam in the lower part.

The nearly level and gently sloping Wickham soils are

moderately well drained. The surface layer is brown sandy loam. The

Wetness, flooding, permeability, low strength, shrink-swell potential, available water capacity, soil blowing, and susceptibility to leaching are the main limitations to the use and management of the major soils in this association.

Most of the major soils, if drained, have high to medium potential for a few cultivated crops, low potential for urban uses, and high to medium potential for woodland.

5. Wehadkee-Congaree association

Nearly level, well drained and poorly drained soils that have loamy and sandy underlying material; on flood plains

The soils in this association are in broad areas along streams.

This association makes up 3 percent of the county. It is 55 percent Wehadkee soils, 20 percent Congaree soils, and 25 percent soils of minor extent. These minor soils are in the Ballahack, Cape Fear, Chewacla, Meggett, Portsmouth, Roanoke, and Tarboro series.

The nearly level Wehadkee soils are poorly drained. The surface layer is brown silt loam. The underlying material is light brownish gray loam in the upper part, gray loam in the middle part, and gray clay loam in the lower part.

The nearly level Congaree soils are well drained. The surface layer is brown silt loam. The underlying material is dark yellowish brown silty clay loam in the upper part; strong brown fine sandy loam, brownish yellow fine sand, and strong brown fine sandy loam in the middle part; and very pale brown fine sand in the lower part.

Most of this association is in woodland. The rest is mainly in pasture.

Flooding and wetness are the main limitations to the use and management of the major soils in this association (fig. 1).

dark gray and very dark gray loamy sand and sandy loam in the middle part, and very dark grayish brown and grayish brown loamy sand in the lower part.

The nearly level Johnston soils are very poorly drained. The surface layer is black mucky loam. Below this is a layer of dark gray fine sandy loam. The underlying material is light brownish gray loamy sand.

Most of this association is in woodland. A small acreage is in pasture.

Flooding and wetness are the main limitations to the use and management of the major soils in this association.

The major soils in this association have low potential for cultivated crops, low potential for urban uses, and high potential for woodland.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

Relative terms are assigned to soil potential classes to

Medium potential.—Soils intermediate between those soils that qualify for high potential and those that qualify

Bibb soils is an undifferentiated group in this survey area.

Most of the acreage of this soil is cultivated. The rest is mainly in pasture or woods.

This soil has high potential for corn, soybeans, peanuts, tobacco, cotton, and small grain. Seasonal wetness is a limitation for some specialty crops such as tobacco. Winter cover crops, minimum tillage, and crop residue management help maintain tilth and production. Conservation practices such as no-till planting, field borders, and crop rotations that include close-growing crops also help conserve soil and water. Artificial drainage is generally required to prevent tobacco from drowning during wet seasons. The potential for pasture forages is high.

The potential for most urban uses is medium to low because of wetness. The potential is medium for urban uses such as dwellings without basements. The potential for most recreational uses is high to medium because of wetness.

This soil has high potential for broad-leaved and needle-leaved trees. The dominant native trees are black tupelo, elm, yellow-poplar, sweetgum, hickory, red maple, American beech, willow oak, white oak, post oak, southern red oak, water oak, and loblolly pine. The understory

such as no-till planting, windbreaks, and crop rotations that include close-growing crops also help conserve soil and water. Fertilizers, particularly nitrogen, should be added in split applications. There is high potential for pasture forages such as Coastal bermudagrass and bahiagrass.

The potential for most urban uses is high. The potential for recreational uses is medium because of the sandy surface layer.

This soil has moderately high potential for broad-leaved and needle-leaved trees. The dominant native trees are loblolly pine, longleaf pine, red maple, hickory, sweetgum, black tupelo, southern red oak, white oak, and post oak. The understory species are mainly dogwood, sassafras, American holly, sourwood, and waxmyrtle. Low available water capacity is the main limitation in woodland use and management. Capability subclass IIs; woodland group 3s.

AyA—Aycock very fine sandy loam, 0 to 2 percent slopes. This well drained soil is in broad, smooth

...covered, and unexposed. There are no major

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BB—Bibb soils. These nearly level, poorly drained soils are in long, narrow to moderately broad areas on flood plains. The mapped areas are generally 50 to several hundred acres in size. In this map unit, the texture of the surface layer is more variable than it is in most other map units; and areas of this map unit are generally larger than those of most other map units. Mapping has been controlled well enough, however, to make interpretations for the anticipated uses of the soils.

Typically, the surface layer is dark, moist, brown to black, and is 2 to 4 inches thick. It is light yellowish brown sand in the upper part and brownish yellow sandy loam and light brownish gray sandy clay loam in the lower part.

Included with this soil in mapping are a few small areas of Autryville and Wagram soils.

The organic matter content of the surface layer is very low. Permeability is rapid in the surface layer and moderate in the subsoil, available water capacity is very low,

Most of the acreage of this soil is in woodland. The

The potential for most urban and recreational uses is

dogwood, sassafras, American holly, sourwood, and waxmyrtle. Low available water capacity is the main limitation in woodland use and management. Capability subclass IIs; woodland group 3s.

Cn—Congaree silt loam. This nearly level, well drained soil is in slightly rounded, higher areas on flood plains. The mapped areas are 5 to 100 acres in size.

Typically, the surface layer is brown silt loam 7 inches thick. The underlying material to a depth of 93 inches is dark yellowish brown, mottled silty clay loam in the upper part; strong brown fine sandy loam; brownish yellow fine sand, and strong brown fine sandy loam in the middle part; and very pale brown fine sand in the lower part.

Included with this soil in mapping are a few small areas of Chewacla, Tarboro, and Wehadkee soils.

The organic matter content of the surface layer is low. Permeability is moderate, available water capacity is high, and shrink-swell potential is low. This soil is dominantly strongly acid or very strongly acid throughout except where limed, but reaction ranges to neutral. The seasonal high water table is at a depth of about 2.5 to 4 feet in late winter and early spring. This soil is frequently flooded for brief periods.

Most of this soil is in woodland. The rest is mainly in pasture.

This soil has high potential for corn, soybeans, and small grain; these crops, however, can be damaged by flooding (fig. 7). Flood prevention is needed for most uses. Minimum tillage, cover crops, and the inclusion of

Included with this soil in mapping are small areas of Grantham and Rains soils.

The organic matter content of the surface layer is medium. Permeability is moderately slow, the available water capacity is high, and shrink-swell potential is moderate. The subsoil is strongly acid or very strongly acid. The seasonal high water table is at or near the surface.

Most of the soil is in woodland. The rest is mainly in pasture or is cultivated.

If drained, this soil has high potential for corn, soybeans, and small grain. There is low potential for tobacco, cotton, and peanuts. Wetness is the main limitation. Minimum tillage, cover crops, and the inclusion of grasses and legumes in the conservation cropping system help maintain tilth and production. Tillage can be delayed in spring because of wetness. Lack of suitable outlets and moderately slow permeability are limitations to the installation of drainage systems. The potential for pasture forages, such as fescue and ladino clover, is high.

The potential for most urban and recreational uses is low because of wetness, permeability, and low strength.

This soil has high potential for broad-leaved and needle-leaved trees. The dominant native trees are loblolly pine, pond pine, white oak, red maple, hickory, sweetgum, swamp tupelo, elm, water oak, and willow oak. The understory species are mainly eastern redcedar, American holly, sweetbay, sourwood, reeds, waxmyrtle, sassafras, and blueberry. Wetness is the main limitation for woodland use and management. Cn

This soil has high potential for corn, soybeans, pea-

oak, and loblolly pine. The understory species are mainly

The moderately well drained Duplin soils are smooth to gently sloping and are near the edges of upland divides. Typically, the surface layer is brown sandy loam 5 inches thick. The subsoil to a depth of 90 inches is brownish yellow clay loam in the upper part and yellow

The potential is medium for most urban uses because of wetness and low strength. The potential for most recreational uses is high.

This soil has high potential for broad-leaved and needle-leaved trees. The density is high.

GoA—Goldsboro fine sandy loam, 0 to 2 percent

in the upper part; brownish yellow sandy clay loam and mottled gray brownish yellow strong brown and yellow.

holly, sweetbay, sourwood, reeds, waxmyrtle, sassafras, and blueberry. Wetness is the main limitation for woodland use and management. Capability subclass IIIw; woodland group 2w.

Gt—Grantham-Urban land complex. This map unit consists of the nearly level Grantham soils and Urban land in areas too intricately mixed to be mapped separately at the scale used. The complex is about 30 percent Grantham soils and 30 to 35 percent Urban land.

The poorly drained Grantham soils are on broad flats and in shallow depressions in uplands. Typically, the surface layer is dark gray very fine sandy loam 6 inches thick. The subsurface layer is light brownish gray very fine sandy loam 5 inches thick. The subsoil is 84 inches thick. It is gray loam in the upper part and gray clay loam in the lower part. The underlying material to a depth of 99 inches is light gray loam.

The Urban land part of this unit consists of impervious areas covered by streets, parking lots, buildings, and other manmade structures. Slope is generally modified to fit the needs. The extent of site modification varies great

This soil has medium potential for corn, soybeans, and small grain. Slope, runoff, erosion, and tilth are the main limitations. Minimum tillage and crop residue management help control runoff and erosion and maintain tilth. Conservation practices such as maintaining drainageways in sod, terraces and diversions, contour stripcropping, contour farming, field borders, and crop rotations that include close-growing crops also help conserve soil and water. The potential for growing pasture forages is medium. Proper pasture management helps maintain adequate protective cover by reducing runoff and controlling erosion.

The potential for most urban uses is low because of slope, permeability, shrink-swell potential, and low strength. The potential is high for paths and trails, low for playgrounds because of slope, and medium for most other uses because of slope and permeability.

This soil has moderately high potential for broad-leaved and needle-leaved trees. The dominant trees are yellow-poplar, white oak, red maple, post oak, southern red oak, water oak, sweetgum, hickory, American sycamore, elm, ash, loblolly pine, and beech. The understory species are variable but are generally low growing.

for playgrounds because of slope, and medium for most other uses because of slope and permeability.

This soil has moderately high potential for broad-leaved and needle-leaved trees. The dominant trees are yellow-poplar, white oak, red maple, post oak, southern red oak, water oak, sweetgum, hickory, American sycamore, elm, ash, loblolly pine, and beech. The understory

JS—Johnston soils. These nearly level, very poorly drained soils are on narrow to moderately broad flood plains. The mapped areas are 10 to more than 100 acres in size. In this map unit, the texture of the surface layer is more variable than it is in most other map units; and areas of this map unit are generally larger than those of most other map units. Mapping has been con-

and sassafras. There are no significant limitations for woodland use and management. Capability subclass VIe; woodland group 3o.

Jo—Johns fine sandy loam. This nearly level, somewhat poorly drained to moderately well drained soil is on

the anticipated uses of the soils.

Typically, the surface layer is black mucky loam 29 inches thick. Below this layer is dark gray fine sandy loam 11 inches thick. The underlying material to a depth of 60 inches is light brownish gray loamy sand.

Included with this soil in mapping are a few small areas of soils that have a surface layer thinner than 20 inches and some small areas of soils that have a loamy sand or sandy clay loam subsoil. Also included are a few small areas of Tarboro soils. A few low-lying areas of soils that are subject to flooding are also included.

The organic matter content in the surface layer is very low. Permeability is moderately rapid, available water capacity is low, and shrink-swell potential is low. The subsoil is dominantly strongly acid or very strongly acid but ranges to medium acid. The seasonal high water table is below a depth of 6 feet.

About half of the acreage of this soil is cultivated. The rest is mainly in woodland and pasture.

This soil has medium to high potential for corn, soybeans, peanuts, tobacco, and small grain. Leaching of plant nutrients, soil blowing, and available water capacity are the main limitations. Blowing sand can damage young plants. Winter cover crops, minimum tillage, and crop residue management help maintain organic matter content and conserve moisture. Conservation practices such as no-till planting, windbreaks, and crop rotations that include close-growing crops help conserve soil and water. Fertilizers, particularly nitrogen, should be added in split applications. There is high potential for pasture forages such as Coastal bermudagrass and bahiagrass.

The potential for most urban uses is high. The potential for recreational uses is medium because of the sandy surface layer.

This soil has moderately high potential for broad-leaved and needle-leaved trees. The dominant native trees are loblolly pine, longleaf pine, red maple, hickory, sweetgum, black tupelo, American beech, southern red oak, white oak, and post oak. The understory species are mainly dogwood, sassafras, American holly, sourwood, and waxmyrtle. Low available water capacity is the main limitation in woodland use and management. Capability subclass IIs; woodland group 3s.

Lu—Lumbee fine sandy loam. This nearly level, poorly drained soil is on broad, smooth flats and in shallow depressions in stream terraces. The mapped areas are 4 to 100 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam 8 inches thick. The subsurface layer is light gray fine sandy loam 4 inches thick. The subsoil is 21 inches thick. It is gray sandy clay loam in the upper part and light gray sandy loam in the lower part. The underlying material to a depth of 60 inches is white sand and white coarse sand.

Included with this soil in mapping are a few small areas of soils that have a solum thicker than 40 inches or clay content of more than 35 percent between depths of 10 and 40 inches. Also included are a few small areas of Bibb and Johns soils and poorly drained soils that have sandy textures throughout.

The organic matter content in the surface layer is medium. Permeability is moderate, the available water capacity is medium, and shrink-swell potential is low. The subsoil is strongly acid or very strongly acid. The seasonal high water table is at or near the surface. These soils are rarely flooded.

Most of the acreage of this soil is in woodland. The rest is in pasture and or is cultivated.

If drained and protected from flooding, this soil has high potential for corn, soybeans, and small grain. There is low potential for tobacco, cotton, and peanuts. Wetness and flooding are the main limitations. Minimum tillage, cover crops, and the inclusion of grasses and legumes in the conservation cropping system help maintain tilth and production. Tillage can be delayed in spring because of wetness. Lack of suitable outlets is a limitation to the installation of drainage systems. The potential for pasture forages, such as fescue and ladino clover, is high.

The potential for most urban and recreational uses is low because of flooding and wetness.

This soil has high potential for broad-leaved and needle-leaved trees. The dominant native trees are baldcypress, pond pine, red maple, green ash, hickory, sweetgum, swamp tupelo, elm, yellow-poplar, river birch, water oak, willow oak, and swamp white oak. The understory species are mainly eastern redcedar, American holly, sweetbay, sourwood, reeds, and waxmyrtle. Wetness is the main limitation for woodland use and management. Capability subclass IIIw; woodland group 2w.

Ly—Lynchburg fine sandy loam. This nearly level, somewhat poorly drained soil is in broad, smooth interstream areas and in shallow depressions in uplands. The mapped areas are 4 to 50 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam 7 inches thick. The subsoil is 69 inches thick. It is light yellowish brown and gray sandy clay loam. The underlying material to a depth of 85 inches is gray sandy clay loam.

Included with this soil in mapping are a few areas of soils that have a sandy surface layer thicker than 20 inches. Also included are a few small areas of Foreston, Goldsboro, Nahunta, and Rains soils.

The organic matter content in the surface layer is low. Permeability is moderate, the available water capacity is medium, and shrink-swell potential is low. The subsoil is dominantly strongly acid or very strongly acid but ranges to extremely acid. The seasonal high water table is at a depth of 0.5 foot to 1.5 feet.

Most of the acreage of this soil is cultivated. The rest is mainly in woodland and pasture.

If drained, this soil has high potential for corn, soybeans, peanuts, tobacco, cotton, and small grain. Wetness is the main limitation. Winter cover crops, minimum tillage, and crop residue management help maintain tilth and production. Conservation practices such as no-till

planting, field borders, and crop rotations that include close-growing crops help conserve soil and water. Artificial drainage is generally required to prevent tobacco from drowning during wet seasons. The potential for pasture forages is high.

The potential is low for most urban uses because of wetness. The recreational potential is medium to low because of wetness.

This soil has high potential for broad-leaved and needle-leaved trees. The dominant native trees are black

This soil has moderately high potential for broad-leaved and needle-leaved trees. The dominant native trees are loblolly pine, red maple, hickory, yellow-poplar, black tupelo, American elm, American beech, southern red oak, water oak, and white oak. The understory species are mainly dogwood, sassafras, sourwood, and waxmyrtle. There are no major limitations for woodland use and management. Capability class I; woodland group 30.

[illegible]

black tunnel American elm American beech southern percent between depths of 40 to 40 inches. Also includ

minimum tillage, and crop residue management help maintain tilth and organic matter content. Conservation practices such as no-till planting (fig. 9), field borders, and crop rotations that include close-growing crops help conserve soil and water. The potential for pasture forages is high.

The potential for most urban uses is high to medium. Seasonal wetness is the main limitation. The recreational potential is high to medium because of sandy material.

This soil has high potential for broad-leaved and needle-leaved trees. The dominant native trees are loblolly pine, red maple, hickory, yellow-poplar, black tupelo, American elm, southern red oak, water oak, and white oak. The understory species are mainly dogwood, sassafras, sourwood, and waxmyrtle. There are no major limitations for woodland use and management. Capability class I; woodland group 2o.

loblolly pine, red maple, hickory, yellow-poplar, black tupelo, American elm, southern red oak, water oak, and white oak. The understory species are mainly dogwood, sassafras, sourwood, and waxmyrtle. There are no major limitations for woodland use and management. Capability subclass IIe; woodland group 2o.

NoC—Norfolk loamy sand, 6 to 10 percent slopes. This well drained soil is on short side slopes on uplands. The mapped areas are 5 to 30 acres in size.

Typically, the surface layer is brown loamy sand 7 inches thick. The subsurface layer is light yellowish brown loamy sand 5 inches thick. The subsoil is 67 inches thick. It is yellowish brown sandy clay loam in the upper part and brownish yellow sandy clay loam in the lower part. The underlying material to a depth of 90 inches is yellow sandy clay loam and coarse sandy loam.

Included with this soil in mapping are a few areas of Oyster and Warrum soils. Also included are small areas

NoC—Norfolk loamy sand, 0 to 6 percent slopes.

This well drained soil is on slightly rounded parts of low ridges and side slopes on uplands. The areas are elongated or irregularly shaped and are 4 to more than 100 acres in size.

of soils that have a solum thinner than 60 inches or less clay in the subsoil than is normal for the Norfolk series.

The organic matter content of the surface layer is low. Permeability is moderate, available water capacity is medium, and shrink-swell potential is low. The subsoil is

The well drained Norfolk soils are in broad, slightly wet areas. Fertilizers, especially nitrogen, should be

[REDACTED]

The organic matter content in the surface layer is medium. Permeability is moderate, the available water capacity is medium and shrink-swell potential is low. The subsoil is strongly acid or very strongly acid. The seasonal high water table is at or near the surface.

About half of the acreage of this soil is cultivated. The rest is mainly in woodland and pasture.

If drained, this soil has high potential for corn, soybeans, and small grain. There is low potential for tobacco.

tems. The potential for pasture forages, such as fescue and ladino clover, is high.

The potential for most urban and recreational uses is low because of wetness.

This soil has high potential for broad-leaved and needle-leaved trees. The dominant native trees are loblolly pine, pond pine, white oak, red maple, hickory, sweetgum, black tupelo, elm, water oak, and willow oak. The introduced species are mainly cedar, American

main limitations for woodland use and management. Capability subclass IIIw; woodland group 2w.

StB—State loamy sand, 0 to 4 percent slopes. This well drained soil is on smooth to slightly rounded, low ridges on stream terraces. The mapped areas are 4 to 100 acres in size.

Typically, the surface layer is brown loamy sand 8 inches thick. The subsurface layer is brown loamy sand 5 inches thick. The subsoil is 27 inches thick. It is strong brown sandy loam in the upper part, strong brown sandy clay loam in the middle part, and strong brown sandy loam in the lower part. The underlying material extends to a depth of 99 inches or more. It is brownish yellow sand in the upper part, very pale brown sand in the middle part, and white coarse sand in the lower part.

Included with this soil in mapping are a few small areas of Altavista, Conetoe, Tarboro, and Wickham soils. Also included are some small areas of soils that have sandy layers at a depth of less than 40 inches. Also included are a few low-lying areas of soils that are subject to flooding.

The organic matter content in the surface layer is low. Permeability is moderate to moderately rapid, available water capacity is medium, and shrink-swell potential is low. The subsoil is strongly acid or very strongly acid.

yellow loamy sand in the upper part, yellow sand in the middle part, and very pale brown sand and coarse sand in the lower part (fig. 12).

Included with this soil in mapping are a few small areas of Conetoe soils and a few areas of soils that have gray mottles within 40 inches of the surface. Also included are low-lying areas of soils that are subject to flooding.

The organic matter content in the surface layer is very low. Permeability is rapid, available water capacity is very low, and shrink-swell potential is low. This soil ranges from strongly acid to slightly acid except where limed. The seasonal high water table is below a depth of 6 feet.

About half of the acreage of this soil is cultivated. The rest is mainly in woodland and pasture.

This soil has medium potential for a few crops such as peanuts and soybeans. It lacks sufficient moisture for most crops during the growing season. Leaching of plant nutrients, soil blowing, and available water capacity are the main limitations. Blowing sand can damage young plants. Minimum tillage, crop residue management, windbreaks, and the inclusion of close-growing grasses and legumes in the cropping system help control soil blowing and conserve moisture. Fertilizers, particularly nitrogen, should be added in split applications. There is medium potential for pasture forages such as Coastal

There is a severe hazard of waterway siltation from areas that are graded and not immediately stabilized.

Recommendations for use and treatment require onsite investigation. Not placed in a capability subclass or a woodland group.

WaB—Wagram loamy sand, 0 to 6 percent slopes.

and brownish yellow sandy clay loam in the upper part and brownish yellow sandy loam in the lower part.

Included with this soil in mapping are a few small areas of soils that have a solum thinner than 60 inches, a redder subsoil, or a surface layer more than 40 inches thick. Also included are a few small areas of Gritney and Norfolk soils.

Runoff is rapid. The subsoil is strongly acid or very strongly acid. The seasonal high water table is below a depth of 6 feet.

Most of the acreage of this soil is in woodland. Only a small acreage is cultivated or in pasture.

This soil has low potential for cultivated crops. Slope, available water capacity, runoff, and susceptibility to leaching are the main limitations. There is medium potential for pasture forages such as Coastal bermudagrass and bahiagrass.

The potential for most urban uses is medium because of slope. The recreational potential is medium because of slope and the sandy surface layer.

This soil has moderately high potential for needle-leaved trees. The dominant native trees are loblolly pine, longleaf pine, red maple, hickory, sweetgum, black tupelo, southern red oak, white oak, and post oak. The understory species are mainly dogwood, sassafras, American holly, sourwood, and waxmyrtle. Low available water capacity is the main limitation in woodland use and management. Capability subclass IVs; woodland group 3s.

We—Wahee fine sandy loam. This nearly level, somewhat poorly drained soil is on broad flats and in slightly depressional drainageways of stream terraces. The mapped areas are 4 to 30 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam 9 inches thick. The subsoil is 54 inches thick. It is light yellowish brown clay loam in the upper part, gray clay in the middle part, and gray clay loam in the lower part. The underlying material to a depth of 75 inches is gray sandy clay loam.

Included with this soil in mapping are a few small areas of Altavista, Dogue, and Roanoke soils. Also included are a few areas of soils that have a solum thinner than 50 inches.

The organic matter content in the surface layer is low. Permeability is slow, the available water capacity is high, and shrink-swell potential is moderate. The subsoil is strongly acid or very strongly acid. The seasonal high water table is within 1 foot of the surface. This soil is commonly flooded for brief periods.

About half of the acreage of this soil is in woodland. The rest is mainly in pasture or is cultivated.

This soil has high potential for corn, soybeans, and small grain. There is low potential for tobacco, cotton, and peanuts. Wetness and flooding are the main limitations. Minimum tillage, cover crops, and the inclusion of grasses and legumes in the conservation cropping system help maintain tilth and production. Tillage can be delayed in spring because of wetness. Slow permeability is a limitation to the installation of drainage systems. The potential for pasture forages, such as fescue and ladino clover, is high.

The potential for most urban and recreational uses is low because of flooding, wetness, permeability, and low strength.

This soil has high potential for broad-leaved and needle-leaved trees. The dominant native trees are pond pine, loblolly pine, red maple, green ash, hickory, sweetgum, black tupelo, elm, river birch, American sycamore, water oak, and willow oak. The understory species are mainly cedar, American holly, sweetbay, sourwood, reeds, and waxmyrtle. Wetness and flooding are the main limitations for woodland use and management. Capability subclass IIIw; woodland group 2w.

Wh—Wehadkee silt loam. This nearly level, poorly drained soil is on broad flood plains along creeks and streams. The mapped areas are 4 to 50 acres or more in size.

Typically, the surface layer is brown silt loam 6 inches thick. The underlying material extends to a depth of 84 inches or more. It is light brownish gray loam in the upper part, gray loam in the middle part, and gray clay loam in the lower part.

Included with this soil in mapping are a few small areas of soils that have a loam or fine sandy loam surface layer. Also included are a few small areas of Chewacla soils.

The organic matter content of the surface layer is medium. Permeability is moderate, the available water capacity is high, and the shrink-swell potential is low. The subsoil ranges from very strongly acid to slightly acid. The seasonal high water table is within 2.5 feet of the surface. This soil is commonly flooded for brief periods.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil has low potential for crop production. Flooding and wetness are the main limitations. Lack of suitable outlets is a limitation to the installation of drainage systems. The potential is high for pasture forages, such as fescue and ladino clover, if the soil is drained and protected from flooding.

The potential for most urban and recreational uses is low because of flooding and wetness.

This soil has very high potential for needle-leaved and broad-leaved trees. The dominant native trees are baldcypress, red maple, green ash, hickory, sweetgum, swamp tupelo, elm, yellow-poplar, river birch, water oak, and willow oak. The understory species are mainly cedar, American holly, sweetbay, sourwood, reeds, and waxmyrtle. Wetness and flooding are the main limitations for woodland use and management. Capability subclass VIw; woodland group 1w.

WkB—Wickham sandy loam, 0 to 4 percent slopes. This well drained soil is on smooth, low ridges on stream terraces. The mapped areas are 4 to 50 acres in size.

Typically, the surface layer is brown sandy loam 8 inches thick. The subsurface layer is reddish yellow sandy loam 4 inches thick. The subsoil is 34 inches thick. It is reddish yellow sandy loam in the upper part, yellowish red sandy clay loam in the middle part, and

and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture and wood-land, as sites for buildings, highways, and other transpor-

In 1971, more than 100,000 acres in the survey area was used for crops and pasture, according to the Conservation Needs Inventory. Of this total, 13,178 acres was used for pasture; 99,130 acres, for row crops; 2,965 acres, for close-growing crops; and 10,016 acres, for rotation hay and pasture.

Edgecombe County's farms are following a nationwide pattern: the size of farms is increasing, and the total number of farms is diminishing. Farmers are increasing their acreages through the use of more and better farm machinery and other advancements in agricultural technology.

Acreage in crops and pasture is gradually decreasing as more and more land is used for urban development. The use of this soil survey to help make land use decisions that may influence the future role of farming in the county is discussed in the section "General soil map for broad land use planning."

Agriculture has long been Edgecombe County's economic backbone. The combination of rich, fertile soils and a favorable climate is suited to the production of traditional southern crops. This suitability is reflected in the county's record of crop yields and total yearly production. Edgecombe County ranks as one of the top North Carolina counties in total production of such crops as tobacco, peanuts, and cotton.

Well drained, nearly level to gently sloping soils that have a sandy loam topsoil are used primarily for these crops. Aycock, Norfolk, Marlboro, State, Goldsboro, Wickham, Altavista, Foreston, and Exum soils are the most commonly used. Peanuts are grown mainly on the relatively sandy Norfolk, State, Tarboro, Wagram, and Conetoe soils.

Corn and soybeans in large acreages are grown throughout Edgecombe County each year. These crops are planted on the deep, droughty sands of the Conetoe and Old Sparta Communities; on the broad, flat, poorly drained soils around the Gatlin Pocosin; and on the rolling, eroding soils of West Edgecombe and Temperance Hall Communities. Many well drained soils are planted to corn and soybeans in rotation with important cash crops.

Small grain is planted primarily as a winter cover crop. Where wheat is grown for grain, soybeans usually follow in late spring or early summer.

Edgecombe County's pastureland consists mainly of two types; fescue grass and clover pastures on somewhat poorly drained to poorly drained soils, and bermudagrass pasture on sandy soils. The amount of land in pasture is decreasing because of the trend toward more production of row crops.

On about 22 percent of Edgecombe County's cropland there is no particular conservation problem. This land has a high potential for continued production of crops. Most of Edgecombe County's land is limited by some soil-related conservation problem because of poor drainage, erosion hazard, or droughty sands.

Soil erosion (fig. 13) is the major concern on about 9 percent of the cropland and pasture in Edgecombe County. If slope is more than 2 percent, erosion is a hazard. Norfolk, Aycock, Marlboro, and Duplin soils, for example, have slopes of 2 to 6 percent, and erosion is a moderate hazard.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Gritney and Duplin soils. Second, soil erosion on farmland results in sedimentation of streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, tilling or preparing a good seedbed is difficult because the original friable surface soil has been eroded away, leaving clayey or hardpan spots. Such spots are common in areas of moderately eroded Norfolk, Aycock, Marlboro, and Duplin soils.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps vegetative cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land, provide nitrogen, and improve tilth for the following crop.

Slopes are so short and irregular that contour tillage or terracing is not practical in most areas of the sloping Gritney soils. On these soils, a cropping system that provides substantial vegetative cover is required to control erosion unless minimum tillage is practiced. Minimizing tillage and leaving crop residue on the surface help increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most soils in the survey area.

Terraces and diversions reduce the length of slope and reduce runoff and erosion. Contouring and contour strip cropping are widespread erosion control practices in the survey area. They are best adapted to soils that have smooth, uniform slopes, including most areas of the sloping Aycock, Duplin, Marlboro, and Norfolk soils.

Soil blowing (fig. 14) is a hazard on the sandy Autryville, Blanton, Conetoe, Kenansville, Tarboro, and Wagram soils. Soil blowing can damage these soils in a few hours if winds are strong and the soils are dry and bare of vegetation or surface mulch. Maintaining vegetative cover, surface mulch, or rough surfaces through proper tillage minimizes soil blowing on these soils. Windbreaks of adapted shrubs, such as Tatarian honeysuckle or autumn-olive, are effective in reducing soil blowing on the muck soils. Edgecombe County has 30,000 acres on which excessive sandiness and

they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to horticultural crops or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forest trees or for engineering purposes.

In the capability system, all kinds of soil are grouped at three levels: capability class, subclass, and unit. Only the levels class and subclass are used in this survey. These levels are defined in the following paragraphs. A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

The capability subclass is identified in the description of each soil map unit in the section "Soil maps for detailed planning."

Woodland management and productivity

Edwin L. Young, forester, and James Q. Wooten, district conservationist, Soil Conservation Service, helped prepare this section.

Originally, all of Edgecombe County was a forest of needle-leaved and broad-leaved trees. Loblolly, longleaf, and shortleaf pines; upland oaks; hickories; holly; and other trees grew on the better drained soils. Sweetgum, blackgum, yellow-poplar, red maple, and bottom land oaks such as water oak and willow oak grew on the poorly drained soils. In general, the soils of Edgecombe County have a high potential for production of both needle-leaved and broad-leaved trees.

Approximately 46 percent of the total land area in the county is commercial woodland. Good stands of commercial trees are produced throughout the county; however, wood production could be increased on 80 percent of the woodland by good management. For this reason, the value of the county's woodlands is much below the potential.

The value of Edgecombe County's woodland cannot be measured by its timber market value alone. Wooded areas also have esthetic value and provide habitats suitable for openland, woodland, and wetland wildlife.

Table 6 contains information useful to woodland owners or forest managers planning use of the soils for wood crops. Only those soils suitable for wood crops are listed, and the ordination (woodland suitability) symbol for each soil is given. All soils bearing the same ordination symbol require the same general kinds of woodland management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: *x*, *w*, *t*, *d*, *c*, *s*, *f*, *r*, and *o*.

expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and

ral soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational areas; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of sand, clay, and

and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 7. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 7 are built on undisturbed soil and have founda-

Local roads and streets referred to in table 7 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, and shrink-swell potential are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, and slope affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 8 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the

adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Waste treatment lagoons are ponds constructed to hold animal waste or other organic waste for biological treatment. Aerobic lagoons are generally designed to hold 2 to 5 feet of liquids, and anaerobic lagoons are generally designed to hold more than 6 feet of liquids.

other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

If it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils sur-

on the probability that soils in a given area contain sizable quantities of sand. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Fine-grained soils are not suitable sources of sand.

Moderate means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 13.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, and slope. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of water.

come that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Organic matter in a soil downgrades the suitability of a soil for use in embankments, dikes, and levees.

Aquifer-fed excavated ponds are bodies of water made by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds that are fed by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Ratings in table 10 are for

The soils of the survey area are rated in table 11 according to limitations that affect their suitability for

not subject to flooding more than once during the annual period of use, and have moderate slopes.

recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, availability of sites for water impoundment, and either access to public sewerlines or suitability of the soils for use as septic tank absorption fields. Soils subject to flooding are limited, in varying degrees, for recreation use by the duration and intensity

Wildlife habitat

James Q. Wooten, district conservationist, and John P. Edwards, wildlife biologist, Soil Conservation Service, helped prepare this section.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, flood hazard, and slope. Soil temperature and soil moisture are also considerations.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, and flood hazard. Soil temperature and soil moisture are also considerations.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness.

woodducks, and black ducks winter along the Tar River and its tributaries. In spring and early in summer, streams and adjacent wetlands provide important nesting and brood areas for woodducks.

Soil properties

John F. Rice, state conservation engineer, Soil Conservation Service, helped prepare this section.

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil

Texture is described in table 13 in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (2) and the system adopted by the American Association of State Highway and Transportation Offi-

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and in plasticity index is estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterburg limits extend a marginal amount across classification boundaries (4 or 5 percent), the classification is

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of

the marginal zone is omitted.

Physical and chemical properties

Table 14 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste

surements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of steel or concrete

texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer within one foot of the

steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on

and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding is the temporary saturation of soil with water.

how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Engineering test data

The results of analyses of engineering properties of several typical soils of the survey area are given in table 16.

The data presented are for soil samples that were collected from carefully selected sites. The soil profiles sampled are typical of the series discussed in the section "Soil series and morphology." The soil samples were analyzed by the Materials and Test Unit, North Carolina Division of Highways.

The methods used in obtaining the data are listed by code in the next paragraph. Most of the codes, in parentheses, refer to the methods assigned by the American Association of State Highway and Transportation Officials. The codes for shrinkage and Unified classification are those assigned by the American Society for Testing and Materials.

The methods and codes are AASHTO classification (M-145-49); Unified classification (D-2487-66T); mechanical analysis (T88-57); liquid limit (T89-60); plasticity index (T90-56); and moisture-density, method A (T99-57).

Classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (6). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are

order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Haplaquents (*Hapl*, meaning simple horizons, plus *aquent*, the suborder of Entisols that have an aquic moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Haplaquents.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is fine-loamy, mixed, nonacid, mesic, Typic Haplaquents.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except

Following the pedon description is the range of important characteristics of the soil series in this survey area. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

The Ap or A1 horizon is brown, grayish brown, dark grayish brown, dark gray, or yellowish brown. The A2 horizon, where present, is pale brown, very pale brown, or light yellowish brown. The A horizon is fine sandy loam, loamy sand, sandy loam, or loam.

brown, pale brown, pale yellow, or very pale brown. The A horizon is sand or loamy sand.

The B2t horizon is yellowish brown, brownish yellow, or strong brown sandy loam or sandy clay loam.

The A'2 horizon is pale yellow, brownish yellow, light yellowish brown, pale brown, very pale brown, or light gray loamy sand or sand.

The B'2t horizon is variable in color and is sandy loam or sandy clay loam.

B3—75 to 90 inches; reddish yellow (7.5YR 6/8) loam; common medium and coarse prominent light gray (10YR 7/2), common fine and medium prominent red (2.5YR 4/8), and common medium faint brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; very strongly acid.

Solum thickness is more than 60 inches. The subsoil is very strongly acid or strongly acid.

The A'2 horizon is brownish brown, dark brown

sand; massive; firm; common fine and medium opaque grains; very strongly acid; clear wavy boundary.

C3g—58 to 74 inches; light brownish gray (10YR 6/2) loamy sand; massive; very friable; few fine flakes of mica; common fine and medium grains of feldspar; strongly acid; abrupt wavy boundary.

These soils are strongly acid or very strongly acid in all horizons within 60 inches of the surface, except where limed.

The A horizon is very dark gray or black fine sandy loam or sandy clay loam.

sand; massive; very friable; many fine and coarse partially decayed roots; very strongly acid; clear wavy boundary.

C6g—61 to 66 inches; grayish brown (10YR 5/2) loamy sand; massive; very friable; few fine and medium roots; very strongly acid.

These soils are strongly acid or very strongly acid throughout, except where limed.

The A horizon is dark gray, dark grayish brown, very dark grayish brown, black, very dark gray, or brown silt loam, sandy loam, or loam. Where the A horizon is very dark grayish brown, very dark gray, or black, it is less

dark gray fine sandy loam or loamy sand.

The C horizon is light brownish gray or dark grayish brown sandy loam, sandy clay, loamy sand, or sand.

Bibb series

The Bibb series consists of poorly drained soils that formed in recent alluvium. These soils are on flood plains. Slopes are less than 2 percent.

A typical pedon of Bibb loam from an area of Bibb soils is 9 miles west of Tarboro on State road 1222, 50 feet west of bridge, and 100 feet south of road, in

The C horizon is gray, dark gray, very dark gray, very dark grayish brown, or grayish brown loam, loamy sand, sand, sandy loam, or fine sandy loam.

Blanton series

The Blanton series consists of moderately well drained soils that formed in Coastal Plain sediments. These soils are on uplands. Slopes are 0 to 6 percent.

A typical pedon of Blanton sand, 0 to 6 percent slopes, is 8 miles west of Tarboro on U.S. Highway 64, 0.4 mile west of the intersection of U.S. Highway 64 and

faces of peds; very strongly acid; gradual wavy boundary.

Solum thickness is more than 60 inches. The subsoil is strongly acid or very strongly acid.

The Ap or A1 horizon is dark grayish brown, grayish brown, or brown. The A2 horizon is very pale brown, yellow, light gray, pale brown, pale yellow, or light yellowish brown. The A horizon is sand or loamy sand.

massive, parting to weak medium subangular blocky structure; friable; common fine and medium roots; common pockets and lenses of sandy loam, loamy sand, and sand; very strongly acid; gradual wavy boundary.

IIC—65 to 80 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; few fine roots; few fine flakes of mica; strongly acid.

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Solum thickness ranges from 36 to more than 72 inches. The subsoil is dominantly strongly acid or very strongly acid but ranges to slightly acid.

The A1 or Ap horizon is brown or dark grayish brown silt loam or loam.

C2—57 to 90 inches; very pale brown (10YR 7/4) sand; common coarse faint white (10YR 8/2) streaks; single grained; loose; common medium opaque grains; medium acid.

flakes of mica; very strongly acid; clear wavy boundary.

C5—79 to 93 inches; very pale brown (10YR 7/3) fine sand; common medium faint white streaks of uncoated sand; single grained; loose; few fine flakes of mica; very strongly acid.

These soils are dominantly strongly acid or very strongly acid throughout except where limed. Reaction ranges to neutral.

The A1 horizon is brown or dark grayish brown silt loam or loam.

The C horizon is brown, dark yellowish brown, yellowish brown, strong brown, brownish yellow, or very pale

B23tg—46 to 69 inches; gray (10YR 6/1) clay; common medium prominent strong brown (7.5YR 5/8) and common fine prominent red mottles; weak medium subangular blocky structure becoming more massive with depth; very firm, sticky, plastic; very strongly acid; clear wavy boundary.

Cg—69 to 85 inches; light gray (10YR 7/1) sandy clay; common coarse distinct brownish yellow (10YR 6/8) and few fine prominent red mottles; massive; firm; very strongly acid.

Solum thickness ranges from 60 to about 80 inches. The subsoil is strongly acid or very strongly acid.

The Ap or A1 horizon is dark gray or very dark gray. The A2 horizon, where present, is gray light gray or

continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—31 to 55 inches; gray (10YR 6/1) clay; common medium prominent reddish yellow (7.5YR 6/8), few medium faint very pale brown (10YR 7/3), and few fine prominent red mottles; weak coarse prismatic primary structure parting to moderate medium angular blocky; very firm, sticky, plastic; few fine grains of feldspar and dark minerals; few fine flakes of mica; common thick distinct discontinuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3g—55 to 66 inches; light gray (10YR 7/1) sandy clay loam; common medium faint very pale brown (10YR 7/3) and few fine distinct brownish yellow mottles;

and medium roots; medium acid; abrupt smooth boundary.

B1—5 to 7 inches; brownish yellow (10YR 6/6) clay loam; few fine distinct strong brown mottles; weak medium subangular blocky structure; firm; common fine roots; very strongly acid; clear wavy boundary.

B21t—7 to 24 inches; yellowish brown (10YR 5/4) clay; common medium and fine prominent red (2.5YR 4/8), common fine distinct yellowish red, and few fine faint pale brown mottles; moderate medium angular blocky structure; very firm, sticky, plastic; few fine roots; common thick distinct discontinuous clay films on faces of peds and coating large pores; very strongly acid; gradual wavy boundary.

B22t—24 to 42 inches; light yellowish brown (10YR 6/4) clay; common medium prominent red (2.5YR 4/8) and medium roots; medium acid; abrupt smooth boundary.

friable; many fine and medium roots; medium acid; abrupt smooth boundary.

A2—7 to 14 inches; light yellowish brown (10YR 6/4) very fine sandy loam; weak medium granular structure; very friable; common roots; strongly acid; clear wavy boundary.

B21t—14 to 23 inches; brownish yellow (10YR 6/6) loam; common medium faint yellowish brown (10YR 5/8) mottles; weak fine and medium subangular structure; friable; slightly acid; slightly clear

Highway 258, 1,000 feet east of highway on farm path, and 135 feet north of path, in a field:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine and medium granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.

A2—7 to 11 inches; brownish yellow (10YR 6/6) loamy sand; weak medium granular structure; very friable; few fine roots; strongly acid; clear wavy boundary.

The C horizon is grayish, stratified sandy and loamy materials that are mottled in shades of red, yellow, or brown.

zon is fine sandy loam, sandy loam, loamy fine sand, or loamy sand.

The B1 horizon, where present, is brownish yellow, light yellowish brown, yellow, ochraceous, or pale brown fine

Goldsboro series

The Goldsboro series consists of moderately well drained soils that formed in Coastal Plain sediments. These soils are on uplands. Slopes are 0 to 2 percent.

A typical pedon of Goldsboro fine sandy loam, 0 to 2 percent slopes, is 4.2 miles southwest of Oak City on N.C. Highway 44 and 75 feet east of highway, in a field:

Ap—0 to 7 inches; dark grayish brown (2.5Y 4/2) fine sandy loam; weak medium granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

A2—7 to 12 inches; light yellowish brown (2.5Y 6/4) fine sandy loam; weak medium granular structure; very friable; common fine roots; many medium roots; slightly acid.

sandy loam or sandy loam. The B2lt and B22t horizons are brownish yellow, yellowish brown, or pale brown. The B23t horizon is mottled gray, brownish yellow, strong brown, or yellowish red. The B3 horizon is gray, light brownish gray, or grayish brown. The B2t and B3 horizons are sandy clay loam or sandy loam.

Grantham series

The Grantham series consists of poorly drained soils that formed in Coastal Plain sediments. These soils are on uplands. Slopes are 0 to 2 percent.

A typical pedon of Grantham very fine sandy loam is 1.5 miles west of Pinetops on N.C. Highway 42, 0.4 mile west on State Road 1124, and 800 feet north of road, in woods.

weak medium and coarse subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

B3g—77 to 95 inches; gray (10YR 6/1) clay loam; common medium prominent strong brown (7.5YR 5/6) and common medium distinct brownish yellow (10YR 6/8) mottles; massive; friable; very strongly acid; gradual wavy boundary.

Cg—95 to 110 inches; light gray (10YR 7/1) loam; many

blocky structure; very firm, sticky, plastic; few thin faint patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B32—32 to 50 inches; mottled red (10R 4/8), weak red (10R 5/2), gray (10YR 6/1), and yellowish brown (10YR 5/8) clay; massive; very firm, sticky, plastic; very strongly acid; clear wavy boundary.

IIc—50 to 60 inches; mottled red (2.5YR 4/8), gray

slightly plastic; few thin patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B3—29 to 34 inches; light yellowish brown (10YR 6/4) sandy loam; common medium distinct gray (10YR 6/1) and few fine distinct strong brown mottles; weak medium subangular blocky structure; very friable; very strongly acid; gradual wavy boundary.

IIc1—34 to 48 inches; light yellowish brown (10YR 6/4) loamy sand; common medium distinct gray (10YR 6/1) and few fine distinct strong brown mottles; massive; very friable; very strongly acid; clear smooth boundary.

IIc2—48 to 70 inches; light yellowish brown (10YR 6/4) loamy coarse sand; common medium distinct light brownish gray (10YR 6/2) and strong brown (7.5YR 5/8) mottles; massive; very friable; very strongly acid.

Solum thickness ranges from 20 to 40 inches. The subsoil is strongly acid or very strongly acid except where limed.

The Ap or A1 horizon is gray, grayish brown, dark gray, or dark grayish brown. The A2 horizon is light yellowish brown, pale brown, very pale brown, or pale yellow. The A horizon is fine sandy loam, sandy loam, loamy fine sand, or loamy sand.

The B horizon is light yellowish brown, brownish yellow, or yellowish brown sandy clay loam or sandy loam.

The C horizon is light yellowish brown or yellowish brown loamy sand, loamy coarse sand, or sand.

Johnston series

The Johnston series consists of very poorly drained soils that formed in fluvial sediments. These soils are on flood plains. Slopes are 0 to 2 percent.

A typical pedon of Johnston mucky loam from an area of Johnston soils is 1.5 miles west of Tarboro on State Road 1208, 0.5 mile south on farm path, and 350 feet west of path, in woods:

A1—0 to 29 inches; black (10YR 2/1) mucky loam; weak medium granular structure grading to massive in the lower part; very friable; many fine and coarse roots; very strongly acid; clear irregular boundary.

AC—29 to 40 inches; dark gray (10YR 4/1) fine sandy loam; common pockets and lenses of black (10YR 2/1) fine sandy loam; massive; very friable; many fine and coarse roots; strongly acid; gradual wavy

This soil is very strongly acid or strongly acid throughout, except where limed.

The A1 horizon is black or very dark gray mucky loam, loam, or fine sandy loam. The AC horizon, where present, is dark gray or dark grayish brown fine sandy loam, sandy loam, or loam.

The C horizon is light brownish gray, gray, or dark gray loamy sand, sand, or fine sandy loam.

Kenansville series

The Kenansville series consists of well drained soils that formed in Coastal Plain sediments. These soils are on stream terraces. Slopes are 0 to 4 percent.

A typical pedon of Kenansville loamy sand, 0 to 4 percent slopes, is 0.7 mile northeast of Pinetops to the East Carolina Railway crossing of State Road 1201, 4,000 feet north on farm lane, and 75 feet west in a field:

Ap—0 to 8 inches; dark grayish brown (2.5Y 4/2) loamy sand; weak medium granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.

A2—8 to 25 inches; light yellowish brown (2.5Y 6/4) loamy sand; weak medium granular structure; very friable; common fine and medium roots; common clean sand grains; strongly acid; clear wavy boundary.

B2t—25 to 36 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; very friable; few fine roots; very strongly acid; gradual wavy boundary.

B3—36 to 48 inches; brownish yellow (10YR 6/6) loamy sand; weak medium granular structure; very friable; very strongly acid; clear wavy boundary.

Cl—48 to 80 inches; brownish yellow (10YR 6/6) loamy sand with pockets of clean sand; massive; very friable; very strongly acid; abrupt smooth boundary.

C2—80 to 90 inches; white (10YR 8/1) sand; few medium distinct brownish yellow (10YR 6/6) mottles; single grained; loose; very strongly acid.

Solum thickness ranges from 40 to 60 inches. The B horizon is dominantly very strongly acid or strongly acid but ranges to medium acid.

The Ap or A1 horizon is dark grayish brown, grayish brown, or brown. The A2 horizon is light yellowish brown, very pale brown, or pale brown. The A horizon is loamy sand or loamy fine sand.

The B2 horizon is strong brown, brownish yellow, or

Lumbee series

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; very friable; many fine and medium roots; strongly acid.

The Lumbee series consists of poorly drained soils

that formed in fluvial sediments. These soils are on stream terraces. Slopes are 0 to 2 percent.

A typical pedon of Lumbee fine sandy loam is 2 miles west of the Coastal Plain Research Station on State Road 1204, 0.633 mile south of path and 700 feet east

abrupt smooth boundary.

B21t—7 to 14 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; weak medium

Road 1232, and 130 feet south of road, in a cultivated field:

- Ap—0 to 8 inches; grayish brown (10YR 5/2) sandy loam; weak medium granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.
- A2—8 to 10 inches; light yellowish brown (10YR 6/4) sandy loam; weak medium granular structure; very friable; common fine roots; medium acid; clear wavy boundary.
- B1—10 to 12 inches; brownish yellow (10YR 6/6) sandy clay loam; weak fine and medium subangular blocky structure; friable; few fine roots; very strongly acid; clear wavy boundary.
- B21t—12 to 26 inches; yellowish brown (10YR 5/6) sandy clay; weak fine and medium subangular blocky structure; firm, sticky, plastic; few fine roots; few thin faint patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
- B22t—26 to 52 inches; yellowish brown (10YR 5/6) clay; common medium distinct red (2.5YR 4/6) and faint strong brown (7.5YR 5/8) mottles; weak fine and medium subangular blocky structure; firm, sticky, plastic; few thin faint patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
- B23t—52 to 63 inches; brownish yellow (10YR 6/6) clay; many medium faint strong brown (7.5YR 5/8), common medium distinct red (2.5YR 4/6) and light gray (10YR 7/1), and common medium faint very pale brown (10YR 7/4) mottles; weak fine and medium subangular blocky structure; firm, sticky, plastic; few thin faint patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
- B3—63 to 71 inches; mottled brownish yellow (10YR 6/6), reddish yellow (7.5YR 6/8), red (2.5YR 4/6), light gray (10YR 7/1), and very pale brown (10YR 7/4) sandy clay; weak medium subangular blocky structure; firm, sticky, plastic; few thin faint patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

Solum thickness is more than 60 inches. The B horizon is dominantly very strongly acid or strongly acid but ranges to slightly acid in some pedons.

The Ap or A1 horizon is grayish brown, dark grayish

Meggett series

The Meggett series consists of poorly drained soils that formed in Coastal Plain sediments. Slopes are 0 to 2 percent.

A typical pedon of Meggett loam is 1.8 miles northeast of Battleboro on State Road 1411, 0.9 mile north of road on farm path, 300 feet north on gas pipeline right-of-way, and 300 feet east in woods:

- O1—2 inches to 1 inch; loose leaves, twigs, and miscellaneous organic litter.
- O2—I inch to 0; very dark grayish brown (10YR 3/2) partially decomposed organic matter.
- A1—0 to 5 inches; dark grayish brown (10YR 4/2) loam; moderate medium granular structure; friable; many fine and coarse roots; few fine flakes of mica; medium acid; abrupt wavy boundary.
- B2tg—5 to 47 inches; gray (5Y 6/1) clay loam; common medium prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) and few fine prominent yellowish red mottles; weak medium angular blocky structure; firm, sticky, plastic; common fine roots; common thin distinct patchy clay films coating large pores; common fine flakes of mica; few medium black concretions; medium acid; gradual wavy boundary.
- B3g—47 to 54 inches; greenish gray (5GY 6/1) clay; common medium prominent strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6), common fine faint greenish gray, and few fine prominent yellowish red mottles; weak fine angular and subangular blocky structure; very firm, sticky, plastic; few fine roots; common thin distinct patchy clay films coating large pores; common fine flakes of mica; few medium black concretions; neutral; gradual wavy boundary.
- C1g—54 to 64 inches; greenish gray (5G 5/1) clay; common medium prominent strong brown (7.5YR 5/6), common medium faint dark greenish gray (5G 4/1), and common fine distinct olive brown mottles; massive; very firm, sticky, plastic; few fine roots; common fine flakes of mica; few medium black concretions; neutral; clear wavy boundary.
- C2g—64 to 70 inches; gray (5Y 6/1) sandy clay loam with pockets of sandy loam and loamy sand; many medium faint greenish gray (5G 5/1) common

The B horizon is gray, light gray, or greenish gray clay, clay loam, or sandy clay.

The C horizon is similar in color to the B horizon and is variable in texture.

Meggett soils as mapped in Edgecombe County are taxadjuncts to the Meggett series; they have a slightly

Cg—67 to 99 inches; light gray (10YR 7/2) loam; many coarse prominent reddish yellow (7.5YR 6/8) mottles; massive; friable; very strongly acid.

Solum thickness ranges from 60 to more than 80 inches. The subsoil is dominantly strongly acid or very strongly acid but ranges to extremely acid.

common, medium faint very pale brown (10YR 7/4)

water approximately 10 percent of sand fraction is

faint patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B3c—33 to 40 inches: light brownish gray (10YR 6/2)

B2tg—13 to 61 inches; gray (10YR 6/1) sandy clay loam; common coarse pockets of sandy clay; common medium distinct yellowish brown (10YR 5/

B2tg—11 to 42 inches; gray (10YR 5/1) clay; many medium faint dark gray (10YR 4/1) and common medium prominent strong brown (7.5YR 5/8) mottles; moderate medium angular blocky structure; very firm, sticky, plastic; common thick distinct discontinuous clay films on faces of peds and coating pores; common fine roots; few fine and very fine flakes of mica; medium grains of feldspar are common in lower part; very strongly acid; gradual wavy boundary.

B3g—42 to 52 inches; gray (10YR 6/1) sandy clay loam; common coarse faint dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) mottles; moderate medium angular blocky structure; very firm, sticky, plastic; common thick distinct discontinuous clay films on faces of peds and coating pores; common fine roots; few fine and very fine flakes of mica; medium grains of feldspar are common in lower part; very strongly acid; gradual wavy boundary.

friable; few fine roots; few fine flakes of mica; strongly acid; clear wavy boundary.

B2t—16 to 32 inches; strong brown (7.5YR 5/6) sandy clay loam; weak fine and medium subangular blocky structure; friable; few fine roots; few thin faint patchy clay films on faces of peds; common fine flakes of mica; strongly acid; gradual wavy boundary.

B3—32 to 40 inches; strong brown (7.5YR 5/8) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; common fine flakes of mica; strongly acid; gradual wavy boundary.

IIC1—40 to 62 inches; brownish yellow (10YR 6/6) sand;

grained; very friable; few fine roots; common fine flakes of mica; strongly acid; gradual wavy boundary. C2—26 to 40 inches; brownish yellow (10YR 6/6) loamy sand; single grained; very friable; few fine roots; few fine flakes of mica; medium acid; gradual wavy

(2.5Y 7/2) mottles; weak medium and coarse subangular blocky structure; very friable; very strongly acid.

Solum thickness ranges from 60 to 80 inches or more.

gray, pale yellow, pale brown, or grayish brown. The A horizon is fine sandy loam or loam.

The B1 horizon, where present, is light yellowish brown, pale brown, or brownish yellow clay loam or sandy clay loam. The B2t horizon is gray or dark gray clay, clay loam, or silty clay loam. The B3 horizon is gray, light gray, or light brownish gray sandy clay loam or clay loam.

The C horizon is gray or light gray sand, loamy sand, or sandy clay loam.

Wehadkee series

The Wehadkee series consists of poorly drained soils that formed in recent alluvial sediments. These soils are on flood plains. Slopes are less than 2 percent.

A typical pedon of Wehadkee silt loam is 0.5 mile north of Tarboro on N.C. Highway 44, 350 feet north of bridge, and 120 feet east in woods:

O1—1 inch to 0; fresh and slightly decayed organic litter.

A1—0 to 6 inches; brown (10YR 5/3) silt loam; moderate medium granular structure; friable; many fine, medium, and coarse roots; common fine flakes of mica; very strongly acid; clay more abundant

The upper part of the C horizon is light brownish gray, light gray, grayish brown, or gray loam, silt loam, silty clay loam, clay loam, or sandy clay loam. The lower part of the C horizon is gray, light gray, or light brownish gray silty clay loam, clay loam, or loam.

Wehadkee soils as mapped in Edgecombe County are taxadjuncts to the Wehadkee series. They have a slightly lower content of fine and coarser sand and are more acid than defined in the range for the Wehadkee series. Use, management, and behavior, however, are the same as for the Wehadkee series.

Wickham series

The Wickham series consists of well drained soils that formed in fluvial sediments. These soils are on stream terraces. Slopes are 0 to 4 percent.

A typical pedon of Wickham sandy loam, 0 to 4 percent slopes, is 3 miles east of Rocky Mount on N.C. Highway 97, 400 feet north of highway on farm path, 150 feet west on path, and 40 feet south of path, in a cultivated field:

Ap—0 to 8 inches; brown (10YR 5/3) sandy loam; weak

where present, is pale brown, light yellowish brown, or

4. Duplin, Roanoke, and Wahee soils formed in sedi-

the surface. The organic litter decays as a result of action by micro-organisms, earthworms, other forms of life, and direct chemical action. As the organic matter decays, organic acids and plant nutrients are released and percolate down through the soil. Roots take up some of the nutrients while organic acids are acting to dissolve more slowly soluble soil components and increase the rate of leaching of inorganic materials.

Organic matter decays rapidly on well drained soils, for example, Norfolk and Aycock soils, and very little accumulates in the surface layer. Excess moisture retards oxidation of organic matter; therefore, decay is slower on wet soils, for example, Portsmouth, Cape Fear, Ballahack, and Johnston soils. Consequently, wet soils have a much higher content of organic matter than dry soils.

covered with dense vegetation than in a dry, cold region with sparse vegetation. With the same environment, less time is required for a soil to develop from coarse textured material than from similar but finer textured material.

Old soils generally have better defined horizons than young soils. In Edgecombe County, old soils, such as Norfolk and Aycock soils, on the smooth, nearly level upland divides, have well developed horizons. By contrast, the younger alluvial soils, such as Bibb soils, have not been in place long enough to develop well defined horizons.

There is no one soil-forming factor responsible for all variations among soils. All five factors, interacting one



water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, needed to prevent soil

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by

measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Plant nutrients are nitrogen, phos-

cause it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid.....	Below 4.5
Very strongly acid.....	4.5 to 5.0
Strongly acid.....	5.1 to 5.5
Medium acid.....	5.6 to 6.0
Slightly acid.....	6.1 to 6.5
Neutral.....	6.6 to 7.3
Mildly alkaline.....	7.4 to 7.8
Moderately alkaline.....	7.9 to 8.4
Strongly alkaline.....	8.5 to 9.0
Very strongly alkaline.....	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rooting depth. Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; these inherited from the parent material.

stream terrace is frequently called a second bottom, in contrast with a flood plain, and is seldom subject to overflow. A marine terrace, generally wide, was deposited by the sea.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole.

ILLUSTRATIONS



Figure 1.—This wooded first bottom is in an area of the Wehadkee-Congaree association along Fishing Creek.

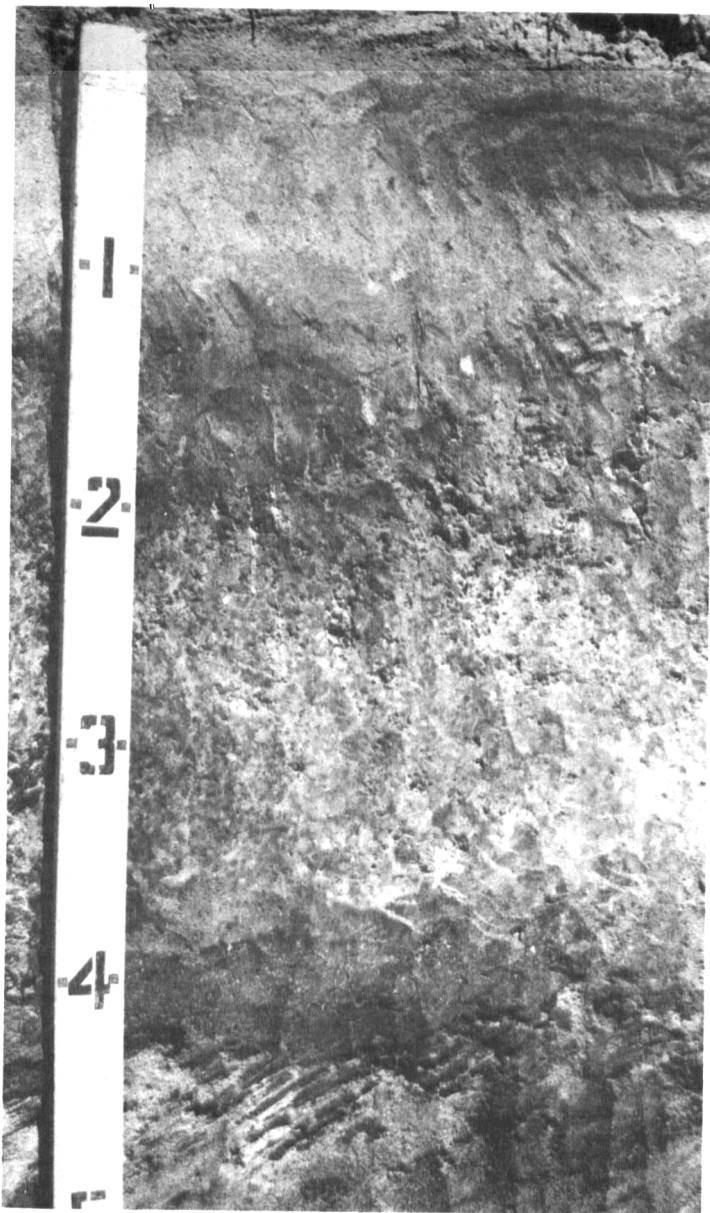


Figure 2.—Profile of Altavista fine sandy loam, 0 to 3 percent slopes. Grav



Figure 3.—Soybeans grow well on Aycock very fine sandy loam, 0 to 2 percent slopes.

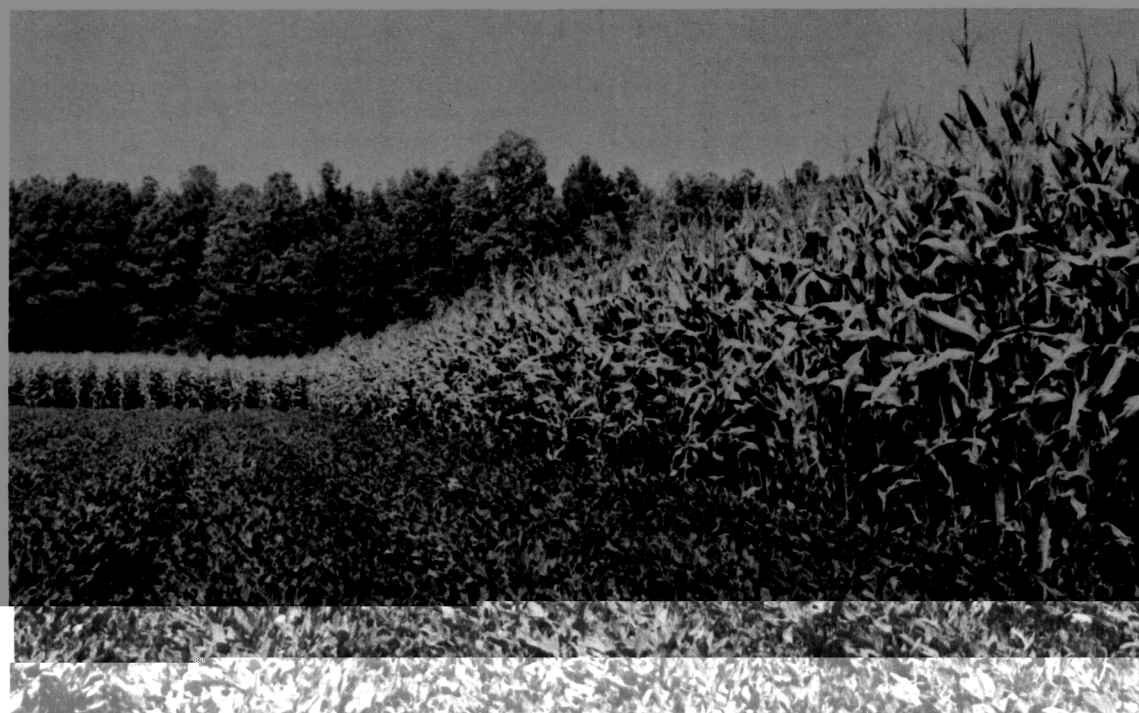


Figure 4.—Peanuts and corn grow well on Aycock very fine sandy loam, 0 to 2 percent slopes. Aycock soils are well drained and are among the best for farming in Edgecombe County.



Figure 5.—Peanuts on Conetoe loamy sand, 0 to 4 percent slopes.



Figure 6.—Tobacco on Conetoe loamy sand, 0 to 4 percent slopes.



Figure 8.—Corn on Goldsboro fine sandy loam, 0 to 2 percent slopes.



Figure 9.—Norfolk loamy sand, 0 to 2 percent slopes, has high potential for corn and small grains.



Figure 10.—Standing water on Roanoke loam killed part of this stand of soybeans. Land smoothing and grading would provide better surface drainage and prevent crop loss.



Figure 11.—State loamy sand, 0 to 4 percent slopes, is an excellent soil for cotton.

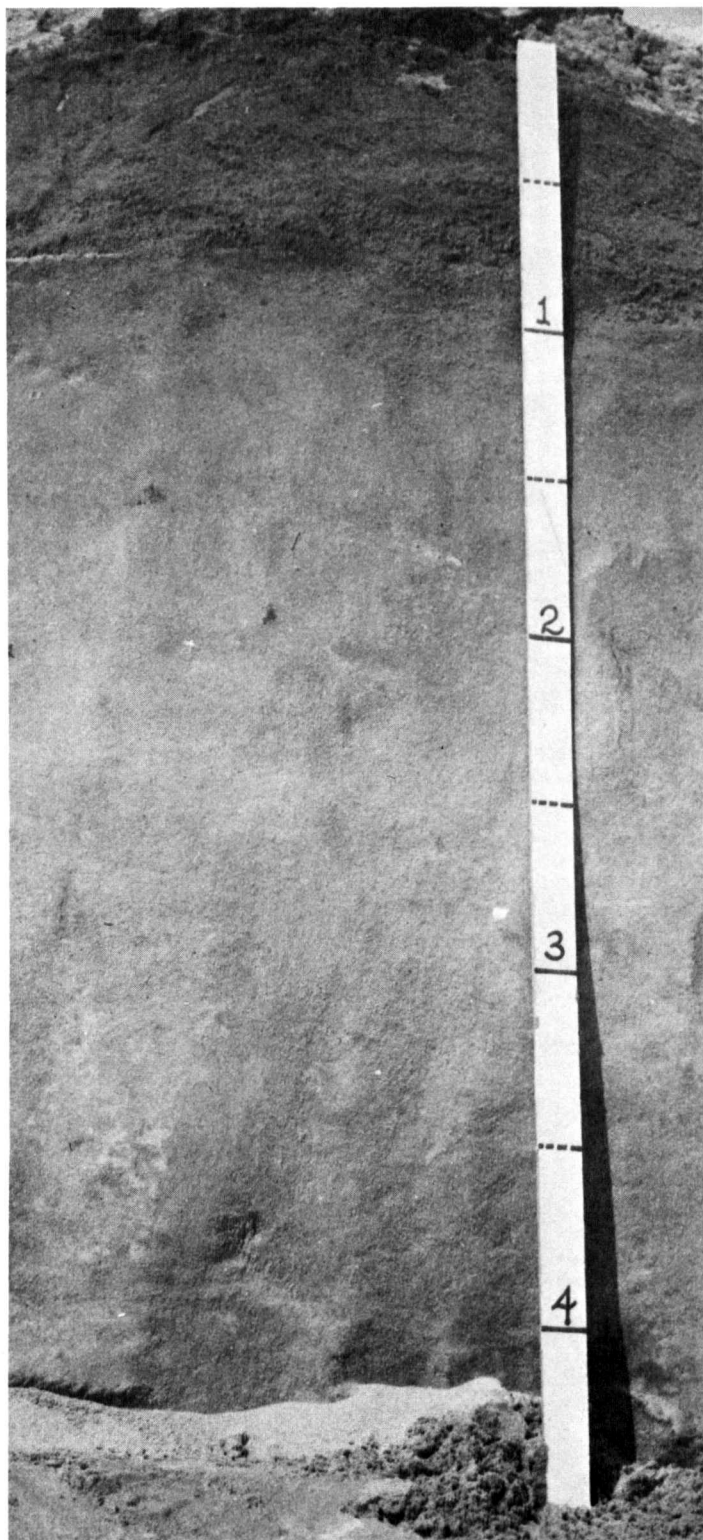


Figure 12.—Profile of Tarboro loamy sand 0 to 6 percent slopes. This soil is somewhat excessively drained and pervious and has a very low available water capacity. It is, however, subject to flooding.



Figure 13.—Erosion on a hillside of Duplin sandy loam, 2 to 5 percent slopes. The soil was left unprotected after clearing.



Figure 14.—Soil blowing is damaging this field of unprotected Wagram loamy sand, 0 to 6 percent slopes.



Figure 15.—Dry weather damages corn on Conetoe loamy sand, 0 to 4 percent slopes.



Figure 16.—This pond in an area of Tarboro loamy sand, 0 to 6 percent slopes, was once a sand pit.



Figure 17.—The abundant grass cover on both banks of the Ballahack Canal provides habitat for wetland wildlife. Aquatic growth provides shelter for fish.

TABLES

TABLE 1.--TEMPERATURE AND PRECIPITATION

Month	Temperature ¹						Precipitation ¹				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree	Average	2 years in 10 will have--		Average number of days with 0.10 inch	Average snowfall
				Maximum temperature	Minimum temperature			Less than--	More than--		
January----	52.1	30.2	39.4	76	10	155	3.78	2.56	4.88	8	2.8
February----	54.2	31.9	43.1	78	13	23	4.12	2.20	5.67	8	1.2
March-----	62.1	38.7	50.4	87	22	126	4.04	2.87	5.11	8	.9
April-----	73.8	47.8	60.9	92	30	327	3.08	1.90	4.14	6	.0
May-----	80.7	56.6	68.7	95	38	580	3.44	2.30	4.47	7	.0
June-----	86.8	64.2	75.5	100	48	765	4.55	2.36	6.32	7	.0
July-----	89.8	68.5	79.2	99	55	905	5.14	3.05	7.00	8	.0
August-----	88.7	67.8	78.3	98	54	877	6.38	3.51	8.71	8	.0
September--	83.7	61.4	72.6	96	43	678	4.17	1.93	5.99	5	.0
October----	73.9	50.2	62.1	90	28	375	3.23	1.00	4.99	5	.0
November---	63.2	30.2	51.5	82	21	211	2.82	1.66	3.95	5	.0

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature ¹		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 28	April 7	April 25
2 years in 10 later than--	March 19	April 1	April 18
5 years in 10 later than--	March 1	March 21	April 6
First freezing temperature in fall:			
1 year in 10 earlier than--	November 5	October 28	October 15
2 years in 10 earlier than--	November 12	November 1	October 20
5 years in 10 earlier than--	November 24	November 10	October 30

¹Recorded in the period 1951-73 at Tarboro, N.C.

TABLE 3.--GROWING SEASON LENGTH

Probability	Daily minimum temperature during growing season ¹		
	Higher than 24° F Days	Higher than 28° F Days	Higher than 32° F Days
9 years in 10	231	211	179
8 years in 10	243	218	188
5 years in 10	267	233	206
2 years in 10	291	247	223
1 year in 10	303	254	232

¹Recorded in the period 1951-73 at Tarboro, N.C.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AaA	Altavista fine sandy loam, 0 to 3 percent slopes-----	14,715	4.5
AuB	Autryville loamy sand, 0 to 6 percent slopes-----	3,475	1.1
AyA	Aycock very fine sandy loam, 0 to 2 percent slopes-----	6,223	1.9
AyB	Aycock very fine sandy loam, 2 to 6 percent slopes-----	10,615	3.2
Ba	Ballahack fine sandy loam-----	4,251	1.3
BB	Bibb soils-----	15,461	4.7
BnB	Blanton sand, 0 to 6 percent slopes-----	306	0.1
Ca	Cape Fear loam-----	4,114	1.3
Cc	Chewacla silt loam-----	1,956	0.6
CeB	Conetoe loamy sand, 0 to 4 percent slopes-----	7,584	2.3
Cn	Congaree silt loam-----	2,379	0.7
Co	Coxville sandy loam-----	960	0.3
DgA	Dogue fine sandy loam, 0 to 3 percent slopes-----	6,432	2.0
DpA	Duplin sandy loam, 0 to 2 percent slopes-----	1,816	0.6
DpB	Duplin sandy loam, 2 to 5 percent slopes-----	3,326	1.0
DuB	Duplin-Urban land complex, 0 to 5 percent slopes-----	380	0.1
ExA	Exum very fine sandy loam, 0 to 2 percent slopes-----	9,498	2.9
Fo	Foreston loamy sand, 0 to 2 percent slopes-----	9,264	2.8
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes-----	24,867	7.6
GpA	Goldsboro-Urban land complex, 0 to 2 percent slopes-----	941	0.3
Gr	Grantham very fine sandy loam-----	4,869	1.5
Gt	Grantham-Urban land complex-----	806	0.2
GyC	Gritney fine sandy loam, 6 to 10 percent slopes-----	994	0.3
GyD	Gritney fine sandy loam, 10 to 15 percent slopes-----	414	0.1
Jo	Johns fine sandy loam-----	1,323	0.4
JS	Johnston soils-----	2,314	0.7
KeB	Kenansville loamy sand, 0 to 4 percent slopes-----	339	0.1
Lu	Lumbee fine sandy loam-----	3,270	1.0
Ly	Lynchburg fine sandy loam-----	5,535	1.7
MaA	Marlboro sandy loam, 0 to 2 percent slopes-----	1,376	0.4
MaB	Marlboro sandy loam, 2 to 6 percent slopes-----	1,938	0.6
Me	Meggett loam-----	2,524	0.8
Na	Nahunta very fine sandy loam-----	749	0.2
NoA	Norfolk loamy sand, 0 to 2 percent slopes-----	11,384	3.5
NoB	Norfolk loamy sand, 2 to 6 percent slopes-----	31,932	9.8
NoC	Norfolk loamy sand, 6 to 10 percent slopes-----	388	0.1
NuB	Norfolk-Urban land complex, 0 to 6 percent slopes-----	1,549	0.5
Pa	Pactolus loamy sand-----	1,277	0.4
Pt	Pits-----	713	0.2
Pu	Portsmouth fine sandy loam-----	6,737	2.1
Ra	Rains fine sandy loam-----	32,114	9.8
Ro	Roanoke loam-----	27,964	8.6
StB	State loamy sand, 0 to 4 percent slopes-----	7,298	2.2
TaB	Tarboro loamy sand, 0 to 6 percent slopes-----	14,312	4.4
Ur	Urban land-----	616	0.2
WaB	Wagram loamy sand, 0 to 6 percent slopes-----	16,327	5.0
WaC	Wagram loamy sand, 6 to 10 percent slopes-----	1,164	0.4
WaD	Wagram loamy sand, 10 to 15 percent slopes-----	486	0.1
We	Wahee fine sandy loam-----	2,893	0.9
Wh	Wehadkee silt loam-----	5,694	1.7
WkB	Wickham sandy loam, 0 to 4 percent slopes-----	7,823	2.4
	Water-----	1,355	0.4
	Total-----	327,040	100.0

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield figure indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Corn	Cotton lint	Tobacco	Peanuts	Soybeans	Wheat	Pasture
	<u>Bu</u>	<u>Lb</u>	<u>Lb</u>	<u>Lb</u>	<u>Bu</u>	<u>Bu</u>	<u>AUM*</u>
AaA----- Altavista	120	550	2,600	3,500	45	55	9.0
AuB----- Autryville	75	600	2,200	3,000	30	35	9.0
AyA----- Aycock	120	750	2,800	3,600	45	60	10.5
AyB----- Aycock	105	700	2,700	3,500	40	55	10.0
Ba----- Ballahack	130	---	---	---	40	50	9.0
BB----- Bibb	90	---	---	---	30	---	8.0
BnB----- Blanton	60	---	2,000	2,200	20	---	8.0
Ca----- Cape Fear	120	---	---	---	45	45	11.0
Cc----- Chewacla	80	---	---	---	30	---	9
CeB----- Conetoe	70	---	2,000	2,700	20	35	9.0
Cn----- Congaree	125	---	---	---	45	50	10.0
Co----- Coxville	105	---	---	---	40	45	9
DgA----- Dogue	125	700	2,600	3,700	45	60	9.5
DpA----- Duplin	110	750	2,800	3,300	45	60	10.0
DpB----- Duplin	100	750	2,800	3,300	45	60	9.0
DuB----- Duplin	---	---	---	---	---	---	---
ExA----- Exum	125	750	3,000	3,400	50	60	11.0
Fo----- Foreston	90	700	2,600	3,500	35	40	10.0
GoA----- Goldsboro	125	700	3,000	3,600	45	60	11.5
GpA----- Goldsboro	---	---	---	---	---	---	---
Gr----- Grantham	125	---	---	---	45	45	10.5

See footnotes at end of table

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Cotton lint	Tobacco	Peanuts	Soybeans	Wheat	Pasture
	Bu	Lb	Lb	Lb	Bu	Bu	AUM*
Gt----- Grantham	---	---	---	---	---	---	---
GyC----- Gritney	60	---	---	1,500	20	---	5.5
GyD----- Gritney	---	---	---	---	---	---	5.0
Jo----- Johns	120	650	2,700	2,800	45	50	9.0
JS----- Johnston	---	---	---	---	---	---	---
KeB----- Kenansville	70	550	2,000	2,400	20	35	9.0
Lu----- Lumbee	110	---	---	---	45	45	9.0
Ly----- Lynchburg	115	675	2,800	2,800	45	50	10.0
MaA----- Marlboro	100	1,000	2,500	3,300	40	60	10.0
MaB----- Marlboro	100	1,000	2,400	3,000	40	50	10.0
Me----- Meggett	90	---	---	---	35	---	8.0
Na----- Nahunta	120	675	2,800	2,800	45	50	10.5
NoA----- Norfolk	110	700	3,000	4,000	40	60	10.5
NoB----- Norfolk	100	650	2,900	3,700	35	55	10.0
NoC----- Norfolk	90	600	2,700	3,300	30	50	9.5
NuB----- Norfolk	---	---	---	---	---	---	---
Pa----- Pactolus	65	---	1,800	2,200	25	---	6.0
Pt**, Pits							
Pu----- Portsmouth	105	---	---	---	45	50	10.0
Ra----- Rains	110	450	2,300	---	45	45	9.0
Ro----- Roanoke	100	---	---	---	40	45	6.8
StB----- State	130	750	3,000	3,300	45	60	9.5
TaB----- Tarboro	50	---	---	2,000	20	---	6.0

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Cotton lint	Tobacco	Peanuts	Soybeans	Wheat	Pasture
	<u>Bu</u>	<u>Lb</u>	<u>Lb</u>	<u>Lb</u>	<u>Bu</u>	<u>Bu</u>	<u>AUM*</u>
Ur**. Urban land							
WaB----- Wagram	75	550	2,400	2,900	25	40	8.5
WaC----- Wagram	70	500	2,100	2,500	20	30	7.5
WaD----- Wagram	---	---	---	---	---	---	6.5
We----- Wahee	90	---	---	---	35	40	10.0
Wh----- Wehadkee	---	---	---	---	---	---	8.5
WkB----- Wickham	115	750	2,600	3,300	35	50	9.5

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available or that it was not applicable to rate the soil for the features shown in this table. Site index was calculated at age 30 for eastern cottonwood, at age 35 for American sycamore, and at age 50 for all other species]

Soil name and map symbol	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
AaA----- Altavista	2w	Slight	Moderate	Slight	Loblolly pine----- Longleaf pine----- Shortleaf pine----- Sweetgum----- White oak-----	91 84 77 84 ---	Loblolly pine, yellow-poplar, sweetgum, American sycamore, cherrybark oak.
AuB----- Autryville	3s	Slight	Moderate	Moderate	Loblolly pine----- Slash pine----- Longleaf pine-----	80 83 65	Loblolly pine, slash pine, longleaf pine.
AyA, AyB----- Aycock	2o	Slight	Slight	Slight	Slash pine----- Loblolly pine----- Longleaf pine----- Southern red oak----- Sweetgum-----	89 89 75 80 90	Slash pine, loblolly pine, longleaf pine.
Ba----- Ballahack	1w	Slight	Severe	Severe	Water oak----- Sweetgum----- Pond pine----- Loblolly pine----- Yellow-poplar----- Baldcypress-----	100 111 80 96 --- ---	Loblolly pine,* slash pine,* sweetgum,* water tupelo.
BB**----- Bibb	2w	Slight	Severe	Severe	Loblolly pine----- Sweetgum----- Water oak-----	90 90 90	Eastern cottonwood,* loblolly pine,* sweetgum,* yellow-poplar *
BnB----- Blanton	3s	Slight	Moderate	Moderate	Slash pine----- Loblolly pine----- Longleaf pine-----	80 80 70	Slash pine.
Ca----- Cape Fear	2w	Slight	Severe	Severe	Sweetgum----- Loblolly pine----- Water oak----- Water tupelo----- Baldcypress----- Swamp tupelo-----	90 90 90 --- --- ---	Loblolly pine,* water tupelo, American sycamore,* sweetgum,* slash pine.*
Cc----- Chewacla	1w	Slight	Moderate	Moderate	Loblolly pine----- Yellow-poplar----- American sycamore----- Sweetgum----- Water oak----- Eastern cottonwood----- Green ash----- Southern red oak-----	96 104 90 97 86 100 97 90	Loblolly pine, slash pine, American sycamore, yellow-poplar, sweetgum, green ash.
CeB----- Conetoe	3s	Slight	Moderate	Moderate	Loblolly pine----- Longleaf pine-----	80 65	Slash pine, loblolly pine.
Cn----- Congaree	1o	Slight	Slight	Slight	Sweetgum----- Yellow-poplar----- Cherrybark oak-----	100 107 107	Loblolly pine, slash pine, yellow-poplar.
					Loblolly pine----- Eastern cottonwood----- American sycamore----- Willow oak----- Black walnut-----	96 107 89 95 ---	American sycamore, black walnut, cherrybark oak, eastern cottonwood, sweetgum.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
Co----- Coxville	2w	Slight	Severe	Severe	Loblolly pine----- Slash pine----- Longleaf pine----- Sweetgum----- Water oak----- Willow oak----- Swamp tupelo-----	90 90 71 90 90 --- ---	Loblolly pine,* slash pine,* sweetgum,* American sycamore.*
DgA----- Dogue	2w	Slight	Moderate	Slight	Loblolly pine----- Northern red oak----- Sweetgum----- Yellow-poplar----- Southern red oak-----	90 80 90 90 80	Loblolly pine.
DpA, DpB----- Duplin	2w	Slight	Moderate	Moderate	Loblolly pine----- Slash pine----- Sweetgum----- Black tupelo----- Southern red oak----- White oak----- Yellow-poplar-----	90 90 90 --- --- --- 100	Loblolly pine, slash pine, yellow-poplar, American sycamore, sweetgum.
ExA----- Exum	2w	Slight	Moderate	Slight	Loblolly pine----- Longleaf pine----- Sweetgum----- Yellow-poplar----- Southern red oak----- White oak-----	90 77 90 100 --- ---	Loblolly pine, slash pine, yellow-poplar, sweetgum, American sycamore.
Fo----- Foreston	2w	Slight	Moderate	Slight	Slash pine----- Loblolly pine----- Longleaf pine-----	90 90 75	Slash pine, loblolly pine.
GoA----- Goldsboro	2w	Slight	Moderate	Slight	Loblolly pine----- Slash pine----- Longleaf pine----- Sweetgum----- Southern red oak----- White oak-----	90 93 77 90 --- ---	Loblolly pine, slash pine, yellow-poplar, American sycamore, sweetgum.
Gr----- Grantham	2w	Slight	Severe	Severe	Loblolly pine----- Slash pine----- Sweetgum----- Southern red oak----- White oak----- Water oak-----	95 95 96 --- --- 90	Loblolly pine,* slash pine,* sweetgum,* American sycamore, yellow-poplar.*
GyC, GyD----- Gritney	3o	Slight	Slight	Slight	Slash pine----- Loblolly pine----- Longleaf pine-----	80 80 65	Slash pine, loblolly pine.
Jo----- Johns	2w	Slight	Moderate	Slight	Loblolly pine----- Sweetgum----- Slash pine-----	86 90 86	Loblolly pine, slash pine.
JS**----- Johnston	1w	Slight	Severe	Severe	Loblolly pine----- Sweetgum----- Water oak-----	97 111 103	Loblolly pine,* slash pine,* baldcypress,* yellow-poplar,* sweetgum,* green ash,* water tupelo.
KeB----- Kenansville	3s	Slight	Moderate	Moderate	Loblolly pine----- Longleaf pine-----	80 65	Loblolly pine, slash pine.

See footnotes at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
Lu----- Lumbee	2w	Slight	Severe	Severe	Loblolly pine----- Slash pine----- Pond pine----- Water tupelo----- Sweetgum----- White oak-----	94 91 75 70 90 ---	Loblolly pine, slash pine, water tupelo, sweetgum.
Ly----- Lynchburg	2w	Slight	Moderate	Slight	Slash pine----- Loblolly pine----- Longleaf pine----- Yellow-poplar----- Sweetgum----- Southern red oak----- White oak----- Blackgum-----	91 86 74 92 90 --- --- ---	Slash pine, loblolly pine, American sycamore, sweetgum.
MaA, MaB----- Marlboro	3o	Slight	Slight	Slight	Loblolly pine----- Slash pine----- Longleaf pine-----	82 80 62	Slash pine, loblolly pine.
Me----- Meggett	1w	Slight	Severe	Severe	Slash pine----- Loblolly pine----- Pond pine-----	100 100 75	Slash pine,* loblolly pine.*
Na----- Nahunta	2w	Slight	Moderate	Moderate	Loblolly pine----- Slash pine----- Sweetgum----- Yellow-poplar----- Southern red oak----- White oak-----	87 86 90 100 --- ---	Loblolly pine, slash pine, yellow-poplar, American sycamore, cherrybark oak.
NoA, NoB, NoC----- Norfolk	2o	Slight	Slight	Slight	Loblolly pine----- Longleaf pine----- Slash pine-----	86 68 86	Slash pine, loblolly pine.
Pa----- Pactolus	3w	Slight	Moderate	Moderate	Loblolly pine----- Longleaf pine----- Slash pine-----	84 70 83	Loblolly pine, slash pine.
Pu----- Portsmouth	2w	Slight	Severe	Severe	Loblolly pine----- Sweetgum----- Slash pine----- Pond pine-----	86 90 90 80	Loblolly pine,* slash pine,* American sycamore.*
Ra----- Rains	2w	Slight	Severe	Severe	Loblolly pine----- Slash pine----- Sweetgum-----	94 91 90	Loblolly pine,* slash pine.*
Ro----- Roanoke	2w	Slight	Severe	Severe	Loblolly pine----- Sweetgum----- Water oak----- Willow oak----- Yellow-poplar-----	85 86 93 93 74	Loblolly pine,* slash pine,* green ash,* sweetgum,* American sycamore.*
StB----- State	1o	Slight	Slight	Slight	Northern red oak----- Yellow-poplar----- Loblolly pine-----	85 105 96	Yellow-poplar, loblolly pine.
TaB----- Tarboro	3s	Slight	Moderate	Moderate	Loblolly pine----- Longleaf pine----- Slash pine-----	80 70 80	Loblolly pine, slash pine.
WaB, WaC, WaD----- Wagram	3s	Slight	Moderate	Moderate	Loblolly pine----- Slash pine----- Longleaf pine-----	82 80 67	Loblolly pine, slash pine, longleaf pine.

See footnotes at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordi- nation symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equip- ment limita- tion	Seedling mortal- ity	Common trees	Site index	
We----- Wahee	2w	Slight	Moderate	Moderate	Loblolly pine----- Slash pine----- Sweetgum-----	86 86 90	Loblolly pine, slash pine, sweetgum, American sycamore, water oak.
Wh----- Wehadkee	1w	Slight	Severe	Severe	Loblolly pine----- Sweetgum----- Yellow-poplar----- Willow oak----- Green ash----- Water oak----- White ash-----	102 83 100 90 96 86 88	Loblolly pine,* American sycamore,* yellow-poplar,* green ash,* sweetgum,* eastern cottonwood,* cherrybark oak *

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and	Shallow	Dwellings	Dwellings	Small	Local roads
Foreston	Moderate: wetness, cutbanks cave.	Slight	Moderate: wetness.	Moderate: wetness.	Slight.
GoA Goldsboro	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: wetness.	Slight.
GpA*: Goldsboro	Moderate: wetness.	Slight	Moderate: wetness.	Moderate: wetness.	Slight.
Urban land.					
Gr Grantham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Gt*: Grantham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Urban land.					
GyC, GyD Gritney	Moderate: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.
Jo Johns	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
JS* Johnston	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
KeB Kenansville	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
NuB*: Norfolk----- Urban land	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
Pa----- Pactolus	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Pt*. Pits					
Pu----- Portsmouth	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ra----- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ro----- Roanoke	Severe: floods, too clayey, wetness.	Severe: floods, low strength, wetness.	Severe: floods, low strength, wetness.	Severe: floods, low strength, wetness.	Severe: floods, low strength, wetness.
StB----- State	Slight-----	Slight-----	Slight-----	Slight-----	Moderate: low strength.
TaB----- Tarboro	Severe: cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Slight.
Ur*. Urban land					
WaB----- Wagram	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
WaC, WaD----- Wagram	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
We----- Wahee	Severe: wetness, floods, too clayey.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: floods, low strength.
Wh----- Wehadkee	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
WkB----- Wickham	Slight-----	Slight-----	Slight-----	Slight-----	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," and "fair." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Waste treatment lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AaA----- Altavista	Severe: wetness.	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Good.
AuB----- Autryville	Slight-----	Severe: seepage.	Slight-----	Slight-----	Fair: too sandy.
AyA----- Aycock	Moderate: percs slowly.	Moderate: seepage.	Slight-----	Slight-----	Fair: too clayey.
AyB----- Aycock	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----	Slight-----	Fair: too clayey.
Ba----- Ballahack	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness.
BB*----- Bibb	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
BnB----- Blanton	Slight-----	Severe: seepage.	Severe: too sandy.	Slight-----	Poor: too sandy, seepage.
Ca----- Cape Fear	Severe: wetness, floods, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness, too clayey.	Severe: floods, wetness.	Poor: wetness, too clayey.
Cc----- Chewacla	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
CeB----- Conetoe	Slight-----	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
Cn----- Congaree	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
Co----- Coxville	Severe: wetness, percs slowly.	Slight-----	Severe: wetness.	Severe: wetness.	Poor: wetness.
DgA----- Dogue	Severe: percs slowly, wetness.	Severe: seepage, wetness.	Severe: too clayey, seepage, wetness.	Severe: wetness.	Poor: too clayey, hard to pack.
DpA----- Duplin	Severe: wetness, percs slowly.	Slight-----	Severe: wetness.	Severe: wetness.	Fair: too clayey.
DpB----- Duplin	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: too clayey.
DuB*: Duplin-----	Severe: wetness, percs slowly.				
Urban land					

See footnote at end of table.

TABLE 8.--SANITARY FACILITIES--Continued

[illegible]

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Waste treatment lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
NoB----- Norfolk	Moderate: wetness.	Moderate: slope, seepage.	Severe: wetness.	Moderate: wetness.	Good.
NoC----- Norfolk	Moderate: slope.	Severe: slope.	Slight-----	Moderate: slope.	Fair: slope.
NuB*: Norfolk----- Urban land.	Moderate: wetness.				
Pa----- Pactolus	Severe: wetness.	Severe: wetness, seepage.	Severe: seepage, wetness.	Severe: seepage, wetness.	Fair: too sandy.
Pt*. Pits					
Pu----- Portsmouth	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Ra----- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Ro----- Roanoke	Severe: floods, percs slowly, wetness.	Slight-----	Severe: floods, too clayey, wetness.	Severe: floods, wetness.	Poor: hard to pack, too clayey, wetness.
StB----- State	Slight-----	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
TaB----- Tarboro	Moderate: floods.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy, area reclaim.
Ur*. Urban land					
WaB----- Wagram	Slight-----	Severe: seepage.	Slight-----	Slight-----	Fair: too sandy.
WaC, WaD----- Wagram	Moderate: slope.	Severe: slope, seepage.	Slight-----	Moderate: slope.	Fair: slope, too sandy.
We----- Wahee	Severe: floods, wetness, percs slowly.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: too clayey, wetness.
Wh----- Wehadkee	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
WkB----- Wickham	Slight-----	Moderate: slope, seepage.	Severe: seepage.	Slight-----	Good.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good", "fair", and "poor". Absence of an entry indicates that the soil was not rated]

AaA----- Altavista	Fair: low strength.	Poor: excess fines.	Good.
AuB----- Autryville	Good-----	Poor: excess fines.	Poor: too sandy.
AyA, AyB----- Aycock	Fair: low strength.	Unsuited: excess fines.	Fair: thin layer.
Ba----- Ballahack	Poor: wetness.	Poor: excess fines.	Poor: wetness.
BB*----- Bibb	Poor: wetness.	Unsuited: excess fines.	Poor: wetness.
BnB----- Blanton	Good-----	Fair: excess fines.	Poor: too sandy.
Ca----- Cape Fear	Poor: wetness, low strength.	Unsuited: excess fines.	Poor: wetness.
Cc----- Chewacla	Poor: wetness.	Unsuited: excess fines.	Good.
CeB----- Conetoe	Good-----	Fair: excess fines.	Poor: too sandy.
Cn----- Congaree	Fair: low strength.	Unsuited: excess fines.	Good.
Co----- Coxville	Poor: wetness, low strength.	Unsuited: excess fines.	Poor: wetness.
DgA----- Dogue	Poor: low strength, area reclaim.	Poor: excess fines.	Fair: thin layer.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Field Name and Location	Soil Description	Soil Analysis	Soil Use
Gr----- Grantham	Poor: wetness.	Unsuited: excess fines.	Poor: wetness.
Gt*: Grantham. Urban land.			
GyC, GyD----- Gritney	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Poor: thin layer.
Jo----- Johns	Fair: wetness.	Poor: excess fines.	Fair: thin layer.
JS*----- Johnston	Poor: wetness, excess humus.	Unsuited: excess fines.	Poor: wetness.
KeB----- Kenansville	Good-----	Fair: excess fines.	Poor: too sandy.
Lu----- Lumbee	Poor: wetness.	Poor: excess fines.	Poor: wetness.
Ly----- Lynchburg	Fair: wetness.	Unsuited: excess fines.	Good.
MaA, MaB----- Marlboro	Fair: low strength.	Unsuited: excess fines.	Fair: thin layer.
Me----- Meggett	Poor: shrink-swell, wetness.	Unsuited: excess fines.	Poor: thin layer, wetness.
Na----- Nahunta	Fair: low strength, wetness.	Unsuited: excess fines.	Fair: thin layer.
NoA, NoB----- Norfolk	Good-----	Unsuited: excess fines.	Good.
NoC----- Norfolk	Good-----	Unsuited: excess fines.	Fair: slope.
NuB*: Norfolk. Urban land.			
Pa----- Pactolus	Fair: wetness.	Fair: excess fines.	Poor: too sandy.

TABLE 9.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Topsoil
Ro----- Roanoke	Poor: area reclaim, low strength, wetness.	Poor: excess fines.	Poor: area reclaim, thin layer, wetness.
StB----- State	Fair: low strength.	Unsuited: excess fines.	Fair: too sandy.
TaB----- Tarboro	Good-----	Fair: excess fines.	Poor: too sandy.
Ur*. Urban land			
WaB, WaC, WaD----- Wagram	Good-----	Poor: excess fines.	Poor: too sandy.
We----- Wahee	Poor: low strength, wetness.	Unsuited: excess fines.	Poor: wetness, area reclaim.
Wh----- Wehadkee	Poor: wetness.	Poor: excess fines.	Poor: wetness.
WkB----- Wickham	Good-----	Unsuited: excess fines.	Fair: thin layer.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
AaA----- Altavista	Moderate: seepage.	Moderate: thin layer, wetness.	Moderate: deep to water, slow refill.	Favorable-----	Not needed-----	Favorable.
AuB----- Autryville	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed-----	Too sandy-----	Droughty.
AyA----- Aycock	Moderate: seepage.	Moderate: piping.	Severe: deep to water.	Not needed-----	Not needed-----	Favorable.
AyB----- Aycock	Moderate: seepage.	Moderate: piping.	Severe: deep to water.	Not needed-----	Favorable-----	Favorable.
Ba----- Ballahack	Severe: seepage.	Moderate: excess humus.	Slight-----	Wetness, floods, poor outlets.	Not needed-----	Not needed.
BB*----- Bibb	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Floods-----	Not needed-----	Wetness.
BnB----- Blanton	Severe: seepage.	Severe: piping, seepage.	Severe: no water.	Not needed-----	Not needed-----	Droughty.
Ca----- Cape Fear	Slight-----	Moderate: compressible.	Slight-----	Floods, percs slowly, poor outlets.	Not needed-----	Not needed.
Cc----- Chewacla	Moderate: seepage.	Moderate: piping.	Moderate: deep to water.	Poor outlets, floods	Not needed-----	Not needed.
CeB----- Conetoe	Severe: seepage.	Moderate: piping, seepage.	Severe: deep to water.	Not needed-----	Not needed-----	Not needed.
Cn----- Congaree	Moderate: seepage.	Moderate: compressible, piping, low strength.	Severe: deep to water.	Not needed-----	Not needed-----	Not needed.
Co----- Coxville	Slight-----	Moderate: compressible.	Slight-----	Wetness, percs slowly.	Not needed-----	Not needed.
DgA----- Dogue	Moderate: slope, seepage.	Moderate: hard to pack, low strength.	Moderate: deep to water.	Wetness, percs slowly.	Erodes easily, percs slowly, wetness.	Erodes easily, percs slowly, wetness.
DpA----- Duplin	Slight-----	Moderate: compressible.	Moderate: deep to water.	Percs slowly---	Not needed-----	Favorable.
DpB----- Duplin	Slight-----	Moderate: compressible.	Moderate: deep to water, slow refill.	Slope-----	Favorable-----	Favorable.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Fo----- Foreston	Severe: seepage.	Moderate: seepage, piping.	Moderate: deep to water.	Cutbanks cave, wetness.	Not needed-----	Not needed.
GoA----- Goldsboro	Moderate: seepage.	Slight-----	Moderate: deep to water.	Favorable-----	Not needed-----	Favorable.
GpA*: Goldsboro. Urban land.						
Gr----- Grantham	Moderate: seepage.	Moderate: compressible, piping.	Moderate: slow refill.	Wetness-----	Not needed-----	Not needed.
Gt*: Grantham. Urban land.						
GyC, GyD----- Gritney	Slight-----	Moderate: hard to pack.	Severe: no water.	Not needed-----	Erodes easily, percs slowly, slope.	Erodes easily, slope, percs slowly.
Jo----- Johns	Moderate: seepage.	Moderate: seepage.	Moderate: deep to water.	Cutbanks cave	Not needed-----	Not needed.
JS*----- Johnston	Severe: seepage.	Severe: piping.	Slight-----	Poor outlets, floods.	Not needed-----	Not needed.
KeB----- Kenansville	Severe: seepage.	Moderate: seepage.	Severe: deep to water.	Not needed-----	Too sandy-----	Droughty.
Lu----- Lumbee	Moderate: seepage.	Moderate: seepage.	Slight-----	Poor outlets, cutbanks cave.	Not needed-----	Not needed.
Ly----- Lynchburg	Moderate: seepage.	Moderate: piping.	Moderate: deep to water.	Favorable-----	Not needed-----	Not needed.
MaA, MaB----- Marlboro	Moderate: seepage.	Slight-----	Severe: deep to water.	Not needed-----	Favorable-----	Favorable.
Me----- Meggett	Slight-----	Moderate: shrink-swell, thin layer.	Moderate: slow refill.	Percs slowly, wetness, floods.	Not needed-----	Not needed.
Na----- Nahunta	Moderate: seepage.	Moderate: compressible, piping.	Moderate: deep to water.	Favorable-----	Not needed-----	Not needed.
NoA----- Norfolk	Moderate: seepage.	Slight-----	Severe: deep to water.	Not needed-----	Not needed-----	Favorable.
NoB----- Norfolk	Moderate: seepage.	Slight-----	Severe: deep to water.	Not needed-----	Favorable-----	Favorable.
NoC----- Norfolk	Moderate: seepage.	Slight-----	Severe: deep to water.	Not needed-----	Favorable-----	Slope.
NuB*: Norfolk. Urban land.						

See footnote at end of table.

TABLE 10.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Pa----- Pactolus	Severe: seepage.	Severe: seepage.	Moderate: deep to water.	Cutbanks cave	Not needed-----	Not needed.
Pt* Pits						
Pu----- Portsmouth	Moderate: seepage.	Moderate: hard to pack, low strength.	Slight-----	Poor outlets, wetness.	Not needed-----	Rooting depth, wetness.
Ra----- Rains	Moderate: seepage.	Slight-----	Slight-----	Favorable-----	Not needed-----	Not needed.
Ro----- Roanoke	Slight-----	Severe: compressible, hard to pack, low strength.	Slight-----	Floods, percs slowly, poor outlets.	Not needed-----	Not needed.
StB----- State	Moderate: seepage.	Slight-----	Severe: no water.	Not needed-----	Favorable-----	Favorable.
TaB----- Tarboro	Severe: seepage.	Severe: piping, seepage.	Severe: deep to water.	Not needed-----	Not needed-----	Not needed.
Ur* Urban land						
WaB----- Wagram	Severe: seepage.	Moderate: piping.	Severe: deep to water.	Not needed-----	Too sandy-----	Favorable.
WaC, WaD----- Wagram	Severe: seepage.	Moderate: piping.	Severe: deep to water.	Not needed-----	Slope, too sandy.	Slope.
We----- Wahee	Slight-----	Severe: wetness.	Severe: slow refill.	Percs slowly, wetness, floods.	Not needed-----	Wetness, percs slowly.
Wh----- Wehadkee	Moderate: seepage.	Moderate: piping.	Slight-----	Poor outlets, floods.	Not needed-----	Not needed.
WkB----- Wickham	Moderate: seepage.	Slight-----	Severe: deep to water.	Not needed-----	Favorable-----	Favorable.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
AaA----- Altavista	Moderate: wetness.	Slight-----	Moderate: wetness.	Slight.
AuB----- Autryville	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
AyA----- Aycock	Slight-----	Slight-----	Slight-----	Slight.
AyB----- Aycock	Slight-----	Slight-----	Moderate: slope.	Slight.
Ba----- Ballahack	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
BB*----- Bibb	Severe: floods, wetness.	Severe: wetness, floods.	Severe: floods, wetness.	Severe: floods, wetness.
BnB----- Blanton	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Severe: too sandy.
Ca----- Cape Fear	Severe: floods, wetness.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.
Cc----- Chewacla	Severe: wetness, floods.	Moderate: wetness, floods.	Severe: wetness, slope.	Moderate: wetness.
CeB----- Conetoe	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy,	Moderate: too sandy.
Cn----- Congaree	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
Co----- Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
DgA----- Dogue	Moderate: percs slowly.	Slight-----	Moderate: percs slowly.	Slight.
DpA----- Duplin	Moderate: percs slowly.	Slight-----	Moderate: wetness, percs slowly.	Slight.
DpB----- Duplin	Moderate: percs slowly.	Slight-----	Moderate: slope, percs slowly.	Slight.
DuB*: Duplin-----	Moderate: percs slowly.	Slight-----	Moderate: slope, percs slowly.	Slight.
Urban land.				
ExA----- Exum	Slight-----	Slight-----	Moderate: wetness.	Slight.

See footnote at end of table.

TABLE 11.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Fo----- Foreston	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
GoA----- Goldsboro	Slight-----	Slight-----	Slight-----	Slight.
GpA*: Goldsboro----- Urban land.	Slight-----	Slight-----	Slight-----	Slight.
Gr----- Grantham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Gt*: Grantham----- Urban land.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
GyC----- Gritney	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight.
GyD----- Gritney	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight.
Jo----- Johns	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
JS*----- Johnston	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
KeB----- Kenansville	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
Lu----- Lumbee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ly----- Lynchburg	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
MaA----- Marlboro	Slight-----	Slight-----	Slight-----	Slight.
MaB----- Marlboro	Slight-----	Slight-----	Moderate: slope.	Slight.
Me----- Meggett	Severe: wetness, percs slowly, floods.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Na----- Nahunta	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
NoA----- Norfolk	Slight-----	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
NoB----- Norfolk	Slight-----	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
NoC----- Norfolk	Moderate: slope.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.

See footnote at end of table.

TABLE 11.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
NuB*: Norfolk-----	Slight-----	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
Urban land.				
Pa----- Pactolus	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: too sandy.
Pt*: Pits				
Pu----- Portsmouth	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ra----- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ro----- Roanoke	Severe: floods, wetness, percs slowly.	Severe: wetness.	Severe: floods, wetness, percs slowly.	Severe: wetness.
StB----- State	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope.	Moderate: too sandy.
TaB----- Tarboro	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
Ur*: Urban land				
WaB----- Wagram	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
WaC, WaD----- Wagram	Moderate: too sandy, slope.	Moderate: too sandy, slope.	Severe: slope.	Moderate: too sandy.
We----- Wahee	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Wh----- Wehadkee	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
WkB----- Wickham	Slight-----	Slight-----	Moderate: slope.	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WILDLIFE HABITAT POTENTIALS

the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AaA----- Altavista	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
AuB----- Autryville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
AyA, AyB----- Aycock	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ba----- Ballahack	Fair	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
BB*----- Bibb	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
BnB----- Blanton	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Ca----- Cape Fear	Fair	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor.
Cc----- Chewacla	Very poor.	Poor	Poor	Good	Good	Fair	Fair	Poor	Good	Fair.

TABLE 12.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Gr----- Grantham	Good	Good	Good	Good	Good	Poor	Good	Good	Good	Fair
Gt*: Grantham. Urban land.										
GyC, GyD----- Gritney	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor
Jo----- Johns	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor
JS*----- Johnston	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
KeB----- Kenansville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor
Lu----- Lumbee	Fair	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor
Ly----- Lynchburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
MaA, MaB----- Marlboro	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor
Me----- Meggett	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
Na----- Nahunta	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor
NoA, NoB----- Norfolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor
NoC----- Norfolk	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor
NuB*: Norfolk. Urban land.										
Pa----- Pactolus	Fair	Fair	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor
Pt*. Pits										
Pu----- Portsmouth	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
Ra----- Rains	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good
Ro----- Roanoke	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor
StB----- State	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor

See footnote at end of table.

TABLE 12.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
TaB----- Tarboro	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Ur*. Urban land										
WaB----- Wagram	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
WaC, WaD----- Wagram	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
We----- Wahee	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Wh----- Wehadkee	Very poor	Poor	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair
WkB----- Wickham	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AaA----- Altavista	0-9	Fine sandy loam	ML, CL-ML, SM, SM-SC	A-4	0	95-100	95-100	65-95	35-60	<23	NP-7
	9-40	Clay loam, sandy clay loam, loam.	CL, CL-ML	A-4, A-6, A-7	0	95-100	95-100	60-95	50-75	20-45	5-26
	40-80	Variable-----	---	---	0	---	---	---	---	---	---
AuB----- Autryville	0-26	Loamy sand-----	SP-SM, SM	A-2, A-3	0	100	100	50-75	5-20	---	NP
	26-38	Sandy loam, sandy clay loam.	SM	A-2	0	100	100	50-75	15-30	<20	NP-3
	38-54	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	100	100	50-75	5-20	---	NP
	54-84	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	100	60-80	25-49	15-35	3-15
AyA, AyB----- Aycock	0-11	Very fine sandy loam.	ML, CL-ML, CL	A-4	0	100	95-100	80-100	51-80	<25	NP-10
	11-90	Clay loam, silty clay loam, loam.	CL	A-4, A-6, A-7	0	100	95-100	90-100	60-90	22-49	8-30
Ba----- Ballahack	0-35	Fine sandy loam, sandy clay loam.	SM, SC, CL, ML	A-4	0	100	100	60-97	36-70	<35	NP-10
	35-74	Stratified sand to sandy clay.	SM, SC, ML, CL	A-2, A-4, A-6, A-7	0	100	95-100	50-95	15-60	<50	NP-25
BB*----- Bibb	0-38	Loam-----	SM, SM-SC, ML, CL-ML	A-2, A-4	0-5	95-100	90-100	60-90	30-60	<25	NP-7
	38-66	Sandy loam, loam, silt loam, loamy sand.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
BnB----- Blanton	0-47	Sand-----	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	47-61	Sandy loam, sand	SM	A-2-4	0	100	100	85-95	20-30	---	NP
	61-83	Sandy clay loam, sandy loam.	SC, SM-SC	A-4, A-2-4	0	100	100	85-95	30-50	18-30	4-10
Ca----- Cape Fear	0-15	Loam-----	CL, ML, CL-ML	A-4, A-6, A-7	0	100	95-100	85-100	60-90	20-49	NP-15
	15-65	Clay loam, clay, sandy clay	ML, CL, MH, CH	A-7	0	100	95-100	80-100	60-85	41-65	15-35

TABLE 13.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
CeB----- Conetoe	0-25	Loamy sand-----	SM, SP-SM	A-2, A-3	0	100	100	50-90	5-30	---	NP
	25-41	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4	0	100	100	50-80	20-40	15-30	NP-10
	41-90	Loamy sand, sand	SM, SP, SP-SM	A-2, A-3	0	100	100	40-85	4-30	---	NP
Cn----- Congaree	0-7	Silt loam-----	CL-ML, ML, CL	A-4	0	95-100	95-100	70-100	51-90	20-35	3-10
	7-42	Silty clay loam, fine sandy loam, loam.	SM, SC, ML, CL	A-4, A-6, A-7	0	95-100	95-100	70-100	40-90	25-50	4-22
	42-93	Variable-----	---	---	---	---	---	---	---	---	---
Co----- Coxville	0-7	Sandy loam-----	SM, ML, CL-ML, CL	A-4, A-6, A-7	0	100	100	85-97	46-75	20-46	1-15
	7-85	Clay loam, sandy clay, clay, sandy clay loam.	CL, CH	A-6, A-7	0	100	100	85-98	53-80	30-55	12-35
DgA----- Dogue	0-7	Fine sandy loam	SM, SC, SM-SC	A-2, A-4	0	95-100	75-100	50-85	20-50	<25	NP-8
	7-55	Clay loam, clay, sandy clay loam.	CL, CH, SC	A-6, A-7	0	95-100	75-100	65-95	40-90	35-60	16-32
	55-80	Stratified sand to sandy clay loam.	SM, SC, SP-SM, SM-SC	A-2, A-4, A-1	0	80-100	60-100	35-70	10-40	<26	NP-8
DnA, DnB-----	0-5	Sandy loam-----	SM, ML	A-2, A-4	0	100	100	67-98	24-58	<16	NP-7
Duplin	5-90	Sandy clay, clay	SM-SC CL, CH	A-6, A-7	0	100	98-100	80-100	50-82	24-54	13-39
DuB*: Duplin	0-5	Sandy loam-----	SM, ML, SM-SC	A-2, A-4	0	100	100	67-98	24-58	<16	NP-7
	5-90	Sandy clay, clay loam, clay.	CL, CH	A-6, A-7	0	100	98-100	80-100	50-82	24-54	13-39
Urban land.											
ExA----- Exum	0-14	Very fine sandy loam.	ML, CL-ML, CL	A-4	0	100	95-100	80-100	51-80	<25	NP-10
	14-91	Loam, clay loam, silty clay loam.	CL	A-4, A-6, A-7	0	100	95-100	90-100	60-90	22-49	8-30
Fo----- Foreston	0-11	Loamy sand-----	SM	A-2	0	100	100	60-100	15-30	---	NP
	11-58	Sandy loam, loamy sand.	SM	A-2	0	100	100	70-100	18-35	<25	NP-4

TABLE 13.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
GpA*: Goldsboro-----	0-15	Fine sandy loam	SM, SM-SC, SC	A-2, A-4	0	90-100	85-100	50-95	15-45	<25	NP-14
	15-82	Sandy clay loam, sandy loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-95	25-55	16-35	4-16
Urban land.											
Gr----- Grantham	0-11	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-100	55-80	<30	NP-7
	11-99	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	100	100	90-100	60-85	22-49	8-30
Gt*: Grantham-----	0-11	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-100	55-80	<30	NP-7
	11-99	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	100	100	90-100	60-85	22-49	8-30
Urban land.											
GyC, GyD----- Gritney	0-5	Fine sandy loam	SM	A-2-4	0	100	95-100	75-99	18-28	---	NP
	5-50	Sandy clay, clay	CH, CL, SC	A-7	0	100	95-100	80-100	45-65	44-60	22-35
	50-60	Sandy clay loam	CH, CL, SC	A-7	0	100	95-100	80-100	40-55	40-55	20-35
Jo----- Johns	0-13	Fine sandy loam	SM, SM-SC	A-2, A-4	---	100	95-100	60-90	15-45	<20	NP-7
	13-34	Sandy clay loam, sandy loam.	SC, SM-SC, CL	A-2, A-4, A-6	---	100	95-100	60-90	30-55	20-35	4-15
	34-70	Sand, loamy sand, loamy coarse sand.	SM, SP-SM, SP	A-2, A-3	---	95-100	95-100	51-90	4-25	---	NP
JS*----- Johnston	0-29	Mucky loam-----	OL	A-8	0	100	100	90-100	60-75	---	NP
	29-40	Stratified fine sandy loam to sandy loam.	SM, SM-SC	A-2, A-4	0	100	100	50-85	25-50	<35	NP-10
	40-60	Stratified loamy sand to sand.	SM, SP-SM	A-2, A-3	0	100	100	50-75	5-30	---	NP
KeB----- Kenansville	0-25	Loamy sand-----	SM	A-1, A-2	0	100	95-100	45-60	10-25	<25	NP-3
	25-36	Sandy loam, fine sandy loam.	SM, SC, SM-SC	A-2	0	100	95-100	50-65	20-35	<30	NP-10
	36-90	Sand, loamy sand	SP-SM, SM	A-1, A-2, A-3	0	100	95-100	40-60	5-30	---	NP
Lu----- Lumbee	0-12	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	85-100	65-90	15-45	<20	NP-7
	12-33	Sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	100	90-100	65-95	30-49	19-35	4-15
	33-60	Loamy sand, sand, fine sand, coarse sand.	SP, SM, SP-SM	A-2, A-3	0	90-100	85-100	50-90	4-25	---	NP
Ly----- Lynchburg	0-7	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	100	75-100	25-50	<30	NP-7
	7-76	Sandy clay loam, sandy loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	100	100	70-100	25-60	15-40	4-18
	76-85	Sandy clay loam, sandy loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	100	100	60-100	25-55	<35	NP-15

See footnote at end of table.

TABLE 13.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	<u>In</u>				<u>Pct</u>					<u>Pct</u>	
MaA, MaB----- Marlboro	0-10	Sandy loam-----	SM, SM-SC, ML, CL-ML	A-2, A-4	0	98-100	95-100	75-100	25-60	<35	NP-7
	10-71	Sandy clay, clay loam, clay, sandy clay loam.	CL, ML	A-4, A-6, A-7	0	98-100	95-100	78-100	51-70	25-48	8-20
Me----- Meggett	0-5	Loam-----	CL, CL-ML, ML	A-4	0	100	100	90-100	51-65	<30	NP-10
	5-64	Sandy clay, clay, clay loam.	CH, SC, CL, MH	A-7	0	100	100	90-100	45-80	45-70	25-45
	64-70	Sandy clay, sandy clay loam.	GC, SC	A-2-6, A-2-4, A-6	0	40-80	35-75	30-70	20-60	0-40	20-50
Na----- Nahunta	0-12	Very fine sandy loam.	ML, CL-ML, CL	A-4	0	100	95-100	80-100	51-80	<25	NP-10
	12-99	Loam, clay loam, silty clay loam.	CL	A-4, A-6, A-7	0	100	95-100	90-100	60-90	22-49	8-30
NoA, NoB, NoC----- Norfolk	0-12	Loamy sand-----	SM, SM-SC, SC	A-2	0	95-100	95-100	50-91	15-33	<25	NP-14
	12-90	Sandy loam, sandy clay loam, clay loam, coarse sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-40	4-20
NuB*: Norfolk-----	0-12	Loamy sand-----	SM, SM-SC, SC	A-2	0	95-100	95-100	50-91	15-33	<25	NP-14
	12-90	Sandy loam, sandy clay loam, clay loam, coarse sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-40	4-20
Urban land.											
Pa----- Pactolus	0-47	Loamy sand-----	SM	A-2	0	100	90-100	51-95	13-30	---	NP
	47-85	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	90-100	51-95	5-30	---	NP
Pt*. Pits											
Pu----- Portsmouth	0-16	Fine sandy loam	ML, CL	A-4	0	100	100	85-100	60-90	18-28	NP-8
	16-40	Sandy clay loam, loam, sandy loam.	SM, SC, ML, CL	A-4, A-6	0	100	100	80-95	40-75	20-36	2-12
	40-82	Loamy sand, sandy loam, clay loam.	SP, SM, ML, CL	A-2, A-3, A-4, A-6	0	100	100	50-90	5-55	12-36	NP-14

See footnote at end of table.

TABLE 13.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
Ra----- Rains	0-13	Fine sandy loam	SM, SM-SC, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
	13-75	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	98-100	65-98	30-70	18-40	4-18
	75-99	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	65-98	36-72	18-45	4-22
Ro----- Roanoke	0-8	Loam, fine sandy loam.	ML, CL-ML, CL, SM	A-6, A-4	0	95-100	85-100	60-100	35-90	25-40	5-16
	8-52	Clay loam, clay, sandy clay loam.	CH, MH, CL	A-7	0	90-100	85-100	85-100	65-95	45-60	22-36
	52-90	Variable-----	---	---	---	---	---	---	---	---	---
StB----- State	0-13	Loamy sand-----	SM	A-2	0	95-100	85-100	45-95	15-30	<20	NP
	13-40	Loam, clay loam, sandy clay loam, sandy loam.	CL, SC, SM, ML	A-2, A-4, A-6	0	95-100	85-100	70-95	30-75	24-34	8-16
	40-99	Variable-----	---	---	---	---	---	---	---	---	---
TaB----- Tarboro	0-40	Loamy sand-----	SM, SP-SM	A-2, A-3	0	100	100	65-95	5-25	---	NP
	40-99	Sand, coarse sand.	SP, SP-SM	A-2, A-3	0	100	90-100	55-90	3-12	---	NP
Ur* Urban land											
WaB, WaC, WaD----- Wagram	0-29	Loamy sand-----	SM	A-2	0	100	98-100	50-85	15-35	---	NP
	29-94	Sandy clay loam, sandy loam.	SC	A-2, A-4, A-6	0	100	98-100	80-95	31-49	21-40	8-25
We----- Wahee	0-9	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	50-85	30-50	<28	NP-7
	9-63	Clay, clay loam, silty clay.	CL, CH	A-7	0	100	100	95-100	70-90	41-60	18-32
	63-75	Variable-----	---	---	---	---	---	---	---	---	---
Wh----- Wehadkee	0-6	Silt loam-----	CL, MH, ML	A-6, A-7	0	100	98-100	85-100	51-95	20-58	11-22
	6-84	Loam, sandy clay loam, clay loam.	ML, CL	A-6, A-7	0	100	99-100	90-100	51-85	30-45	11-20
WkB----- Wickham	0-15	Sandy loam-----	SM, SM-SC, ML, CL-ML	A-4	0	95-100	90-100	70-100	45-80	<25	NP-7
	15-38	Sandy clay loam, clay loam, loam.	CL-ML, CL, SC, SM-SC	A-2, A-4, A-6, A-7-6	0	95-100	90-100	75-100	30-70	20-41	5-15
	38-99	Variable-----	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol > means more than. Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
AaA----- Altavista	0-9 9-40 40-80	2.0-6.0 0.6-2.0 ---	0.12-0.20 0.12-0.20 ---	4.5-6.0 4.5-6.0 ---	Low----- Low----- ---	Moderate----- Moderate----- ---	Moderate----- Moderate----- ---	0.20 0.24 ---	4
AuB----- Autryville	0-26 26-38 38-54 54-84	>6.0 2.0-6.0 >6.0 0.6-2.0	0.04-0.09 0.08-0.13 0.03-0.08 0.10-0.15	4.5-6.5 4.5-5.5 4.5-5.5 4.5-5.5	Low----- Low----- Low----- Low-----	Low----- Low----- Low----- Low-----	High----- High----- High----- High-----	0.10 0.10 0.10 0.17	5
AyA, AyB----- Aycok	0-11 11-90	2.0-6.0 0.6-2.0	0.15-0.20 0.15-0.20	4.5-6.0 4.5-5.5	Low----- Low-----	Low----- Moderate-----	High----- High-----	0.37 0.43	4
Ba----- Ballahack	0-35 35-74	2.0-6.0 0.6-2.0	0.10-0.20 0.06-0.18	4.5-5.5 4.5-5.5	Low----- Low-----	High----- High-----	High----- High-----	0.10 0.17	---
BB*----- Bibb	0-38 38-66	0.6-2.0 0.6-2.0	0.12-0.18 0.12-0.20	4.5-5.5 4.5-5.5	Low----- Low-----	High----- High-----	Moderate----- Moderate-----	0.20 0.37	5
BnB----- Blanton	0-47 47-61 61-83	6.0-20 2.0-6.0 0.6-2.0	0.03-0.07 0.10-0.15 0.10-0.15	4.5-6.0 4.5-5.5 4.5-5.5	Very low Low----- Low-----	Low----- Moderate----- High-----	High----- High----- High-----	0.17 0.24 0.32	5
Ca----- Cape Fear	0-15 15-65 65-80	0.6-6.0 0.06-0.2 ---	0.15-0.22 0.12-0.22 ---	4.5-6.5 4.5-6.0 ---	Low----- Moderate ---	High----- High----- ---	High----- High----- ---	0.15 0.32 ---	5
Cc----- Chewacla	0-16 16-99	0.6-2.0 0.6-2.0	0.15-0.24 0.12-0.20	4.5-6.5 4.5-6.5	Low----- Low-----	High----- High-----	Moderate----- Moderate-----	0.28 0.28	4
CeB----- Conetoe	0-25 25-41 41-90	6.0-20 2.0-6.0 6.0-20	0.05-0.10 0.10-0.15 0.05-0.10	4.5-6.0 4.5-6.0 4.5-6.0	Low----- Low----- Low-----	Low----- Low----- Low-----	High----- High----- High-----	0.15 0.10 0.10	5
Cn----- Congaree	0-7 7-42 42-93	0.6-2.0 0.6-2.0 ---	0.12-0.20 0.12-0.20 ---	4.5-7.3 4.5-7.3 ---	Low----- Low----- ---	Moderate----- Moderate----- ---	Moderate----- Moderate----- ---	0.37 0.37 ---	5
Co----- Coxville	0-7 7-85	0.6-2.0 0.2-0.6	0.12-0.17 0.14-0.18	4.5-6.0 4.5-5.5	Low----- Moderate	High----- High-----	High----- High-----	0.28 0.32	---
DgA----- Dogue	0-7 7-55 55-80	2.0-6.0 0.2-0.6 0.6-6.0	0.08-0.15 0.12-0.19 0.05-0.14	3.6-6.5 3.6-5.5 3.6-5.5	Low----- Moderate Low-----	High----- High----- High-----	High----- High----- High-----	0.32 0.28 0.17	4
DpA, DpB----- Duplin	0-5 5-90	2.0-6.0 0.2-0.6	0.10-0.15 0.13-0.18	5.1-7.3 4.5-5.5	Low----- Moderate	Moderate----- High-----	High----- High-----	0.32 0.28	3
DuB*: Duplin-----	0-5 5-90	2.0-6.0 0.2-0.6	0.10-0.15 0.13-0.18	5.1-7.3 4.5-5.5	Low----- Moderate	Moderate----- High-----	High----- High-----	0.32 0.28	3
Urban land.									
ExA----- Exum	0-14 14-91	2.0-6.0 0.6-2.0	0.15-0.20 0.15-0.20	4.5-6.0 4.5-5.5	Low----- Low-----	Low----- Moderate-----	High----- High-----	0.37 0.37	5
Fo----- Foreston	0-11 11-58 58-72	6.0-20 2.0-6.0 6.0-20	0.05-0.10 0.09-0.13 0.03-0.10	4.5-6.5 4.5-5.5 4.5-5.5	Very low Low----- Very low	Moderate----- Moderate----- Moderate-----	High----- High----- High-----	0.10 0.10 0.10	4
GoA----- Goldsboro	0-15 15-82	2.0-6.0 0.6-2.0	0.08-0.12 0.11-0.15	4.5-6.0 4.5-5.5	Low----- Low-----	Moderate----- Moderate-----	High----- High-----	0.20 0.24	5

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
GpA*: Goldsboro-----	0-15	2.0-6.0	0.08-0.12	4.5-6.0	Low-----	Moderate-----	High-----	0.20	5
	15-82	0.6-2.0	0.11-0.15	4.5-5.5	Low-----	Moderate-----	High-----	0.24	
Urban land.									
Gr----- Grantham	0-11	2.0-6.0	0.13-0.20	4.5-5.5	Low-----	High-----	High-----	0.37	4
	11-99	0.2-0.6	0.15-0.20	4.5-5.5	Low-----	High-----	High-----	0.43	
Gt*: Grantham-----	0-11	2.0-6.0	0.13-0.20	4.5-5.5	Low-----	High-----	High-----	0.37	4
	11-99	0.2-0.6	0.15-0.20	4.5-5.5	Low-----	High-----	High-----	0.43	
Urban land.									
GyC, GyD----- Gritney	0-5	6.0-20	0.10-0.15	4.5-5.5	Low-----	High-----	Moderate-----	0.32	3
	5-50	0.06-0.2	0.10-0.15	4.5-5.5	High-----	High-----	Moderate-----	0.37	
	50-60	0.2-0.6	0.10-0.15	4.5-5.5	High-----	High-----	Moderate-----	0.37	
Jo----- Johns	0-13	2.0-6.0	0.08-0.14	4.5-5.5	Low-----	Moderate-----	High-----	0.20	5
	13-34	0.6-2.0	0.12-0.15	4.5-5.5	Low-----	Moderate-----	High-----	0.24	
	34-70	6.0-20	0.03-0.06	4.5-5.5	Low-----	Moderate-----	High-----	0.10	
JS*----- Johnston	0-29	2.0-6.0	0.20-0.26	4.5-5.5	Low-----	High-----	High-----	0.17	---
	29-40	6.0-20	0.06-0.12	4.5-5.5	Low-----	High-----	High-----	0.17	
	40-60	6.0-20	0.02-0.07	4.5-5.5	Low-----	High-----	High-----	0.17	
KeB----- Kenansville	0-25	6.0-20	0.04-0.10	4.5-6.0	Low-----	Low-----	High-----	0.15	5
	25-36	2.0-6.0	0.10-0.14	4.5-6.0	Low-----	Low-----	High-----	0.15	
	36-90	6.0-20	<0.05	4.5-6.0	Low-----	Low-----	High-----	0.10	
Lu----- Lumbree	0-12	2.0-6.0	0.08-0.12	4.5-5.5	Low-----	High-----	High-----	0.24	5
	12-33	0.6-2.0	0.12-0.16	4.5-5.5	Low-----	High-----	High-----	0.32	
	33-60	6.0-20	0.03-0.06	4.5-5.5	Low-----	High-----	High-----	0.10	
Ly----- Lynchburg	0-7	2.0-6.0	0.09-0.13	3.6-5.5	Low-----	High-----	High-----	0.20	4
	7-76	0.6-2.0	0.12-0.16	3.6-5.5	Low-----	High-----	High-----	0.20	
	76-85	0.6-2.0	0.12-0.16	3.6-5.5	Low-----	High-----	High-----	0.20	
MaA, MaB----- Marlboro	0-10	2.0-6.0	0.09-0.14	4.5-6.0	Low-----	High-----	Moderate-----	0.20	4
	10-71	0.6-2.0	0.14-0.18	4.5-6.5	Low-----	High-----	Moderate-----	0.20	
Me----- Meggett	0-5	2.0-6.0	0.15-0.20	5.6-7.3	Low-----	High-----	Low-----	0.32	4
	5-64	0.06-0.2	0.13-0.18	5.6-8.4	High-----	High-----	Low-----	0.32	
	64-70	0.2-2.0	0.12-0.16	6.6-8.4	Moderate	High-----	Low-----	0.28	
Na----- Nahunta	0-12	2.0-6.0	0.15-0.20	4.5-6.0	Low-----	Moderate-----	Moderate-----	0.43	4
	12-99	0.6-2.0	0.15-0.20	3.6-5.5	Low-----	High-----	High-----	0.43	
NoA, NoB, NoC----- Norfolk	0-12	2.0-6.0	0.06-0.10	4.5-6.0	Low-----	Moderate-----	High-----	0.17	5
	12-90	0.6-2.0	0.10-0.15	4.5-5.5	Low-----	Moderate-----	High-----	0.24	
NuB*: Norfolk-----	0-12	2.0-6.0	0.06-0.10	4.5-6.0	Low-----	Moderate-----	High-----	0.17	5
	12-90	0.6-2.0	0.10-0.15	4.5-5.5	Low-----	Moderate-----	High-----	0.24	
Urban land.									
Pa----- Pactolus	0-47	6.0-20	0.05-0.10	4.5-6.0	Low-----	Low-----	High-----	0.10	---
	47-85	6.0-20	0.03-0.07	4.5-5.5	Low-----	Low-----	High-----	0.10	
Pt*. Pits									
Pu----- Portsmouth	0-16	0.6-2.0	0.14-0.20	4.5-5.5	Low-----	High-----	High-----	---	---
	16-40	0.6-2.0	0.13-0.17	4.5-5.5	Low-----	High-----	High-----	---	
	40-82	0.6-6.0	0.04-0.16	4.5-5.5	Low-----	High-----	High-----	---	

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Ra----- Rains	0-13	2.0-6.0	0.08-0.12	4.5-6.5	Low-----	High-----	High-----	0.17	5
	13-75	0.6-2.0	0.10-0.15	4.5-5.5	Low-----	High-----	High-----	0.24	
	75-99	0.6-2.0	0.10-0.15	4.5-5.5	Low-----	High-----	High-----	0.28	
Ro----- Roanoke	0-8	0.6-2.0	0.14-0.20	4.5-5.5	Low-----	High-----	High-----	---	---
	8-52	0.06-0.2	0.10-0.19	4.5-5.5	Moderate	High-----	High-----	---	
	52-90	---	---	---	---	---	---	---	
StB----- State	0-13	2.0-6.0	0.06-0.09	4.5-6.0	Low-----	Low-----	High-----	0.28	4
	13-40	0.6-6.0	0.14-0.19	4.5-5.5	Low-----	Moderate-----	High-----	0.28	
	40-99	---	---	---	---	---	---	---	
TaB----- Tarboro	0-40	6.0-20	0.05-0.09	5.1-6.5	Low-----	Low-----	Moderate-----	0.10	5
	40-99	>20	0.02-0.06	5.1-6.5	Low-----	Low-----	Moderate-----	0.10	
Ur*. Urban land									
WaB, WaC, WaD----- Wagram	0-29	6.0-20	0.05-0.08	4.5-6.0	Low-----	Low-----	High-----	0.15	5
	29-94	2.0-6.0	0.12-0.16	4.5-5.5	Low-----	Low-----	High-----	0.20	
We----- Wahee	0-9	0.6-2.0	0.10-0.15	4.5-5.5	Low-----	Moderate-----	High-----	0.28	5
	9-63	0.06-0.2	0.12-0.20	4.5-5.5	Moderate	High-----	High-----	0.28	
	63-75	0.2-0.6	0.12-0.20	4.5-5.5	Moderate	High-----	High-----	0.28	
Wh----- Wehadkee	0-6	2.0-6.0	0.14-0.18	4.5-6.5	Low-----	High-----	Moderate-----	0.24	---
	6-84	0.6-2.0	0.16-0.20	4.5-6.5	Low-----	High-----	Moderate-----	0.32	
WkB----- Wickham	0-15	2.0-6.0	0.11-0.16	4.5-6.0	Low-----	Moderate-----	High-----	0.20	5
	15-38	0.6-2.0	0.12-0.17	4.5-6.0	Low-----	Moderate-----	High-----	0.24	
	38-99	---	---	---	---	---	---	---	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydro-logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
AaA----- Altavista	C	None-----	---	---	1.5-2.5	Apparent	Dec-Mar
AuB----- Autryville	A	None-----	---	---	>6.0	---	---
AyA, AyB----- Aycock	B	None-----	---	---	>6.0	---	---
Ba----- Ballahack	D	Frequent-----	Brief-----	Nov-Mar	0-1.0	Apparent	Nov-Mar
BB*----- Bibb	C	Common-----	Brief-----	Dec-May	0.5-1.5	Apparent	Dec-Apr
BnB----- Blanton	A	None-----	---	---	>6.0	---	---
Ca**----- Cape Fear	D	Frequent-----	Brief-----	Jan-May	+0.5-1.5	Apparent	Nov-Apr
Cc----- Chewacla	C	Common-----	Brief-----	Nov-Apr	0.5-1.5	Apparent	Nov-Apr
CeB----- Conetoe	A	None-----	---	---	>6.0	---	---
Cn----- Congaree	B	Frequent-----	Brief-----	Nov-Apr	2.5-4.0	Apparent	Nov-Apr
Co----- Coxville	D	None-----	---	---	0-2.5	Apparent	Nov-Apr
DgA----- Dogue	C	None-----	---	---	2.0-3.0	Apparent	Dec-Apr
DpA, DpB----- Duplin	C	None-----	---	---	2.0-3.5	Apparent	Dec-Apr
DuB*: Duplin----- Urban land.	C	None-----	---	---	2.0-3.5	Apparent	Dec-Apr
ExA----- Exum	C	None-----	---	---	2.0-3.0	Apparent	Nov-Apr
Fo----- Foreston	C	None-----	---	---	2.0-3.0	Apparent	Dec-Apr
GoA----- Goldsboro	B	None-----	---	---	2.0-3.0	Apparent	Dec-Mar
GpA*: Goldsboro----- Urban land.	B	None-----	---	---	2.0-3.0	Apparent	Dec-Mar
Gr----- Grantham	D	None-----	---	---	0-1.0	Apparent	Dec-Mar
Gt*: Grantham-----	D	None-----	---	---	0-1.0	Apparent	Dec-Mar

See footnotes at end of table.

TABLE 15.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
Gt*: Urban land.							
GyC, GyD----- Gritney	C	None-----	---	---	>6.0	---	---
Jo----- Johns	C	None-----	---	---	1.5-3.0	Apparent	Nov-Apr
JS**----- Johnston	D	Frequent-----	Long-----	Nov-Jul	+1-1.5	Apparent	Nov-Jun
KeB----- Kenansville	A	None-----	---	---	>6.0	---	---
Lu----- Lumbee	D	Rare-----	---	---	0-1.0	Apparent	Nov-Apr
Ly----- Lynchburg	B/D	None-----	---	---	0.5-1.5	Apparent	Nov-Apr
MaA, MaB----- Marlboro	B	None-----	---	---	>6.0	---	---
Me----- Meggett	D	Common-----	Brief-----	Dec-Apr	0-1.0	Apparent	Jun-Apr
Na----- Nahunta	C	None-----	---	---	1.0-2.0	Apparent	Nov-Apr
NoA, NoB, NoC----- Norfolk	B	None-----	---	---	4.0-6.0	---	---
NuB*: Norfolk----- Urban land.	B	None-----	---	---	4.0-6.0	---	---
Pa----- Pactolus	C	None-----	---	---	1.5-2.5	Apparent	Jan-Mar
Pt*. Pits							
Pu----- Portsmouth	D	None-----	---	---	0-1.0	Apparent	Jan-Dec
Ra----- Rains	B/D	None-----	---	---	0-1.0	Apparent	Nov-Apr
Ro----- Roanoke	D	Frequent-----	Brief-----	Nov-Jun	0-1.0	Apparent	Nov-May
StB----- State	B	None to rare	Brief-----	Dec-Jun	>6.0	---	---
TaB----- Tarboro	A	None to rare	Brief-----	---	>6.0	---	---
Ur*. Urban land							
WaB, WaC, WaD----- Wagram	A	None-----	---	---	>6.0	---	---
We----- Wahee	D	Common-----	Brief-----	---	0.5-1.5	Apparent	Dec-Mar

TABLE 15.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
Wh----- Wehadkee	D	Common-----	Brief-----	Nov-Jun	<u>Fe</u> 0-2.5	Apparent	Nov-Jun
WkB----- Wickham	B	None-----	---	---	>6.0	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

** A plus sign under "Depth to high water table" indicates that the water table is above the surface of the soil.

TABLE 16.--ENGINEERING TEST DATA

[Tests were performed by the Materials and Test Unit, North Carolina Division of Highways. The location of tested pedons is given in the descriptions of the soils in the section "Soil series and morphology"]

Soil name and report number	Depth	Horizon	Moisture density ¹		Mechanical analysis ²										Liquid limit	Plasticity index	Classification	
			Maximum dry density	Optimum moisture	Percentage passing sieve--					Percentage smaller than--				AASHTO ³			Unified ⁴	
					No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 60 (0.25 mm)	No. 200 (0.074 mm)	0.05 mm	0.02 mm	0.005 mm	0.002 mm					
	In		Pcf	Pct														
Ballahack fine sandy loam:																		
S72NC-33-10-1-----	0-9	Ap	109	15	100	100	93	87	47	39	27	17	12	25	7	A-4(2)	SM-SC	
S72NC-33-10-3-----	17-35	A13	102	19	100	100	97	91	59	50	41	31	25	31	10	A-4(5)	CL	
S72NC-33-10-6-----	58-74	C3g	117	11	100	99	75	53	23	15	10	6	5	--	NP	A-2-4(0)	SM	
Cape fear loam:																		
S71NC-33-4-1-----	0-15	A1	88	24	100	99	85	75	61	58	43	26	17	47	11	A-7-5(7)	ML	
S71NC-33-4-3-----	18-33	B21tg	101	21	100	99	84	77	65	63	58	48	44	50	25	A-7-6(14)	CL	
S71NC-33-4-6-----	65-120	IIC	115	13	100	94	36	22	8	7	6	5	4	--	NP	A-1-b(0)	SP-SM	
Conetoe loamy sand:																		
S70NC-33-5-1-----	0-8	Ap	115	10	100	100	70	35	14	13	11	6	4	--	NP	A-2-4(0)	SM	
S70NC-33-5-4-----	28-41	B2t	121	12	100	100	74	42	28	27	26	22	19	26	8	A-2-4(0)	SC	
S70NC-33-5-7-----	57-90	C2	102	16	100	100	83	33	4	4	4	3	2	--	NP	A-3(0)	SP	
Roanoke loam:																		
S72NC-33-8-1-----	0-8	Ap	107	16	100	100	87	79	60	50	35	16	10	29	5	A-4(5)	ML	
S72NC-33-8-3-----	11-42	B2tg	94	25	100	100	96	94	90	87	80	64	52	57	29	A-7-6(19)	CH	
S72NC-33-8-5-----	52-90	IICg	110	16	100	90	29	13	3	2	2	2	2	--	NP	A-1-b(0)	SP	
State loamy sand:																		
S70NC-33-2-1-----	0-8	Ap	116	10	100	100	91	73	23	18	13	8	6	--	NP	A-2-4(0)	SM	
S70NC-33-2-4-----	16-32	B2t	114	15	100	100	95	88	46	41	36	30	26	32	13	A-6(3)	SC	
S70NC-33-2-6-----	40-62	IIC1	101	17	100	100	88	54	6	6	6	5	4	--	NP	A-3(0)	SP-SM	
Tarboro loamy sand:																		
S70NC-33-3-1-----	0-8	Ap	112	12	100	100	80	47	14	11	8	5	3	--	NP	A-2-4(0)	SM	
S70NC-33-3-2-----	8-26	C1	109	14	100	100	85	50	13	9	8	5	4	--	NP	A-2-4(0)	SM	
S70NC-33-3-5-----	57-82	C4	100	18	100	99	82	56	3	3	2	1	1	--	NP	A-3(0)	SP	

¹Based on the moisture-density relations of soils using 5.5-lb. rammer and 12-in. drop, AASHTO Designation T 99, Methods A and C (1).

²Mechanical analyses according to the AASHTO Designation T 88. Results by this procedure frequently may differ somewhat from results that would have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHTO procedure, the fine material is analyzed by the hydrometer method and the various grain-sized fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-sized fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soil.

³Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (Pt. 1, Ed. 10): The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes, AASHTO Designation M 145-49.

⁴Based on the Unified Soil Classification System (2).

TABLE 17.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series]

Soil name	Family or higher taxonomic class
Altavista-----	Fine-loamy, mixed, thermic Aquic Hapludults
Autryville-----	Loamy, siliceous, thermic Arenic Paleudults
Aycock-----	Fine-silty, siliceous, thermic Typic Paleudults
Ballahack-----	Fine-loamy, mixed, acid, thermic Cumulic Humaquepts
Bibb-----	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Blanton-----	Loamy, siliceous, thermic Grossarenic Paleudults
Cape Fear-----	Clayey, mixed, thermic Typic Umbraquults
*Chewacla-----	Fine-loamy, mixed, thermic Fluvaquentic Dystrochrepts
Conetoe-----	Loamy, mixed, thermic Arenic Hapludults
*Congaree-----	Fine-loamy, mixed, nonacid, thermic Typic Udifluvents
Coxville-----	Clayey, kaolinitic, thermic Typic Paleaquults
Dogue-----	Clayey, mixed, thermic Aquic Hapludults
Duplin-----	Clayey, kaolinitic, thermic Aquic Paleudults
Exum-----	Fine-silty, siliceous, thermic Aquic Paleudults
Foreston-----	Coarse-loamy, siliceous, thermic Aquic Paleudults
Goldsboro-----	Fine-loamy, siliceous, thermic Aquic Paleudults
Grantham-----	Fine-silty, siliceous, thermic Typic Paleaquults
Gritney-----	Clayey, mixed, thermic Typic Hapludults
Johns-----	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic Aquic Hapludults
Johnston-----	Coarse-loamy, siliceous, acid, thermic Cumulic Humaquepts
Kenansville-----	Loamy, siliceous, thermic Arenic Hapludults
Lumbee-----	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic Typic Ochraqults
Lynchburg-----	Fine-loamy, siliceous, thermic Aeris Paleaquults
Marlboro-----	Clayey, kaolinitic, thermic Typic Paleudults
*Meggett-----	Fine, mixed, thermic Typic Albaqualfs
Nahunta-----	Fine-silty, siliceous, thermic Aeris Paleaquults
Norfolk-----	Fine-loamy, siliceous, thermic Typic Paleudults
Pactolus-----	Thermic, coated Aquic Quartzipsamments
Portsmouth-----	Fine-loamy, mixed, thermic Typic Umbraquults
Rains-----	Fine-loamy, siliceous, thermic Typic Paleaquults
Roanoke-----	Clayey, mixed, thermic Typic Ochraqults
State-----	Fine-loamy, mixed, thermic Typic Hapludults
Tarboro-----	Mixed, thermic Typic Udipsamments
Wagram-----	Loamy, siliceous, thermic Arenic Paleudults
Wahee-----	Clayey, mixed, thermic Aeris Ochraqults
*Wehadkee-----	Fine-loamy, mixed, nonacid, thermic Typic Fluvaquents
Wickham-----	Fine-loamy, mixed, thermic Typic Hapludults

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